

# HELMINTHOLOGICAL ABSTRACTS

*incorporating*  
**BIBLIOGRAPHY OF HELMINTHOLOGY**  
For the Year 1936.



**IMPERIAL BUREAU OF AGRICULTURAL PARASITOLOGY**  
Winches Farm  
Hatfield Road  
St. Albans • Eng.

IMPERIAL BUREAU OF AGRICULTURAL PARASITOLOGY

*Director* - - - Professor R. T. Leiper, M.D., D.Sc., F.R.S.

*Technical Assistants* - Miss A. Walton, Miss H. M. Schiller,  
Miss I. J. Muir.

HELMINTHOLOGICAL ABSTRACTS

*incorporating*

BIBLIOGRAPHY OF HELMINTHOLOGY

Abstracts in the present number are by :

T. W. M. Cameron.	D. O. Morgan.
Phyllis A. Clapham.	J. N. Oldham.
T. Goodey.	B. G. Peters.
R. H. Hurst.	Katharine M. Sanderson.
J. W. G. Leiper.	Enid M. Smedley.
R. T. Leiper.	Marjorie J. Triffitt.

# HELMINTHOLOGICAL ABSTRACTS

INCORPORATING BIBLIOGRAPHY OF HELMINTHOLOGY  
FOR THE YEAR 1936

Vol. V, Part 3.

## 177—Acta Paediatrica.

- a. ROTH, H., 1936.—“Untersuchungen über die Häufigkeit des Vorkommens von Eingeweidewürmern, speziell von *Trichuris trichiura*, bei Patienten der Kopenhagener Universitäts-Kinderklinik.” **19** (1), 104-122.

## 178—Advisory Leaflet. Ministry of Agriculture and Fisheries. London.

- a. ANON, 1936.—“Gapes in poultry.” No. 78, 4 pp.

(178a) This is a revision of the Leaflet published in 1932 [see Helm. Abs., Vol. I, No. 280a].

## 179—Agricultural Gazette of New South Wales.

- a. HUNGERFORD, T. G., 1936.—“The practical aspect of round worms in poultry.” **47** (9), 533-534.

## 180—Agriculture and Live-Stock in India.

- a. PARRELL, I. W., 1936.—“Some methods of controlling the spreading of internal parasites of the horse.” **6** (3), 291-295.

(180a) This is a reprint from J. Roy. Army Vet. Corps, **6** (3), 138-141 [see Helm. Abs., Vol. IV, No. 393a].

## 181—American Journal of Hygiene.

- a. GRAHAM, G. L., 1936.—“Studies on Strongyloides. I. *S. ratti* in parasitic series, each generation in the rat established with a single homogonic larva.” **24** (1), 71-87.
- b. GIOVANNOLA, A., 1936.—“Specific action of some drugs on experimental infections of *Schistosoma mansoni*.” **24** (1), 102-108.
- c. FOSTER, A. O., 1936.—“On a probable relationship between anemia and susceptibility to hookworm infection.” **24** (1), 109-128.
- d. CHANDLER, A. C., 1936.—“Studies on the nature of immunity to intestinal helminths. IV. The interrelations between parenteral and intestinal immunity in rats infected with *Nippostrongylus*.” **24** (1), 129-144.
- e. CORT, W. W., 1936.—“Studies on schistosome dermatitis. IV. Further information on distribution in Canada and the United States.” **24** (2), 318-333.
- f. LUTTERMOSEN, G. W., 1936.—“A helminthological survey of Baltimore house rats (*Rattus norvegicus*).” **24** (2), 350-360.
- g. KERR, K. B., 1936.—“Studies on acquired immunity to the dog hookworm, *Ancylostoma caninum*.” **24** (2), 381-406.

(181a) Graham has infected rats with *Strongyloides ratti* from a single homogonic larva. The pure-line strain was passed by single larva transfers through 14 parasitic generations without heterogonic development. A male appears to be unnecessary. The parasitic phase is a female organism which is either syngonic or parthenogenetic.

R.T.L.

(181b) Giovannola has compared the action of emetine hydrochloride, tartar emetic, fouadin and acriflavine on artificial infections of *S. mansoni* in rabbits. He finds that of these drugs, only tartar emetic has a specific action. The drug was administered intravenously in a 6% solution, each rabbit receiving 75 mg. over a period of 9 days. Emetine hydrochloride given intramuscularly has some action on this infection, but he advises its use in human schistosomiasis, only when intravenous injections of tartar emetic are not practicable. Attempts to obtain chemical prophylaxis by administering these drugs, before infecting the rabbits with *S. mansoni*, were unsuccessful.

K.S.

(181c) Foster finds that there is an inverse correlation between anaemia and resistance to hookworm infection in dogs and cats. Resistance to *A. caninum* can be overcome by periodic bleeding. Iron deficiency and consequent anaemia brought about by a milk diet also rendered the hosts more susceptible. He suggests that the so-called age resistance may be related to the natural age-curve of the haemoglobin level of the host.

P.A.C.

(181d) Using *Nippostrongylus muris* in rats, Chandler finds that local immunity may be developed in the intestine which, not being shared by the blood stream, never becomes a general immunity. However, parenteral immunity may be induced by transplanting *N. muris* into the body cavity, where they die and disintegrate. Such immunity is communicated by some means to the intestinal wall, where the growth and reproduction are inhibited.

P.A.C.

(181e) From correspondence Cort is able to indicate that Schistosome dermatitis has a wider range of distribution in Canada and the United States than has hitherto been suspected. In Western Canada and especially in Saskatchewan Province several intermediate hosts are apparently implicated. In the United States infections are widespread in the lake regions of Minnesota, Wisconsin, Iowa and Michigan. Scattered reports have been received from North Dakota, Illinois, Nebraska, Texas, Florida and Washington. *Cercaria tuckerensis* Miller, 1927 is mentioned as the fifth cercaria known to produce dermatitis in man in the United States.

R.T.L.

(181f) Only 2% of the adult rats examined in Baltimore were free from helminths. Eleven species of parasites were identified and of these none were new. *Trichinella spiralis* had a low incidence of 1·2% in 2,500 adult rats. Regional variations were marked in the cases of *Nippostrongylus muris* and *Strongyloides ratti*. Marked seasonal variations were noted in *Hymenolepis diminuta* and *Moniliformis moniliformis*.

R.T.L.

(181g) Kerr has used laboratory white mice as an experimental host for *Ancylostoma caninum*. Although these larvae penetrate the skin and migrate normally they are unable to establish themselves in the intestine. It has been possible, therefore, to study the development of immunity in the larval phase

of the life cycle where intimate contact occurs between the parasite and the tissues of the host. A series of sub-lethal weekly doses induced resistance to an otherwise fatal infection. This occurred equally after skin or mouth infections. The resistance is of relatively short duration. The associated histological changes in the skin, oesophagus and stomach are related to the development of this resistance. A humoral antibody is suggested. R.T.L.

#### 182—American Journal of Public Health.

- a. UPTON, R. G., 1936.—“Incidence and severity of hookworm infestation in East Texas.” **26** (9), 924-926.

#### 183—American Journal of Tropical Medicine.

- a. MCCOY, O. R., 1936.—“Filarial parasites of the monkeys of Panama.” **16** (4), 383-402.

(183a) Of 72 wild monkeys of Panama 87% were infected with Filaria. Seven different species were found. Of these *Acanthocheilonema gracile* (Rud. 1809) was the commonest and was the only one in which the embryo was sheathed. *Tetrapetalonema marmosetae* Faust, 1925 occurred in the marmoset, *Leontocebus geoffroyi*, *T. atelensis* n. sp. in red spider and black spider monkeys and *T. parvum* n. sp. in white face and yellow titi. Three new microfilariae were also observed and two are described as *M. panamensis* n. sp. and *M. obtusa*. Clark's observations on the pathological effects of heavy infections with *A. gracile* are confirmed. R.T.L.

#### 184—American Midland Naturalist.

- a. MIZELLE, J. D., 1936.—“New species of trematodes from the gills of Illinois fishes.” **17** (5), 785-806.

(184a) Mizelle finds that freezing for 6 to 24 hours is an excellent means of collecting trematodes from the gills of fish, the gills being subsequently thawed in tap water and shaken. He describes 7 new species of *Cleidodiscus* and 5 of *Onchocleidus* from the Centrarchidae. T.W.M.C.

#### 185—Anales del Instituto de Biología.

- a. CABALLERO, E. & SOKOLOFF, D., 1936.—“Quinta contribución al conocimiento de la parasitología de *Rana montezumae*.” **7** (1), 119-154. [English summary pp. 153-154.]

(185a) The genus *Cephalogonimus* is revised and *C. robustus* n. sp. from *Rana montezumae* is described. A key for the differentiation of the 12 species is added. R.T.L.

#### 186—Annales de Médecine et de Pharmacie Coloniales.

- a. MOULINARD, M., 1936.—“Traitement de la bilharziose par l'anthiomaline.” **34** (2), 352-371.  
b. RICHET, P., 1936.—“Auto-observation d'un cas de bilharziose vésicale et de son traitement par différents composés stibies [stibiés].” **34** (2), 372-383.  
c. FARGES, 1936.—“Sur quelques foyers de bilharzioses en Côte d'Ivoire.” **34** (2), 384-387.

(186a) Moulinard has successfully treated 8 cases of bilharzia infection with anthiomaline (Lithium antimoniothiomalate) and has found that eggs disappear from the urine usually after the seventh injection. In the majority of cases egg sterilization resulted. The injections are painless and without local or generalized reaction. The results compare favourably with those obtained in 8 cases treated with tartar emetic and 8 with emetin. R.T.L.

### 187—Annales de Médecine Vétérinaire.

- a. SCHOENAERS, F., 1936.—“La strongylose chez le cheval.” 81 (1), 1-20.

(187a) Schoenaers in discussing the problem of strongylosis in the horse confines himself almost entirely to those aspects of the subject which are of direct interest to the clinician. He deals in turn with etiology, pathology of adults and larvae, pathological anatomy, symptomatology, prognosis, prophylaxis and treatment, summarizing recent advances under each of these headings. J.W.G.L.

### 188—Annales de Parasitologie Humaine et Comparée.

- a. MASSIA, G. & ROMAN, E., 1936.—“Tumeurs à *Capillaria* dans l'estomac de surmulots lyonnais.” 14 (4), 332-348.
- b. BRUMPT, E., 1936.—“*Schistosoma bovis* et *Schistosoma mansoni* ne sont pas transmis par *Planorbis* (*Indoplanorbis*) *exustus*. Observations biologiques concernant ce Planorbe (autofécondation, érosion de la coquille, élevage, etc.).” 14 (5), 464-471.
- c. TARASSOV, V. A., 1936.—“Expérience acquise par cinq années d'études sur les Bothriocéphales dans la partie nord-est de l'U.R.S.S. (1931-1935).” 14 (5), 472-484.
- d. FAURE, L., 1936.—“Un cas de ladrerie caprine.” 14 (5), 485-488.
- e. SMORODINTZEV, I. A. & PAVLOVA, P. I., 1936.—“Répartition de l'azote des fractions albumineuses dans le corps des Ténias.” 14 (5), 489-494.
- f. GALLIARD, H., 1936.—“Infestation expérimentale de *Mansonnia indiana* Edwards avec les embryons de la filaire de Bancroft, au Tonkin.” 14 (5), 495-496.
- g. GALLIARD, H., 1936.—“Procédé de recherche des microfilaires de *Wuchereria f. bancrofti* chez les moustiques desséchés.” 14 (5), 519.
- h. DOLLFUS, R. P., 1936.—“Présence d'un *Pseudamphistoma* chez la loutre à Richelieu (Indre-et-Loire).” 14 (5), 520-522.

(188a) Massia & Roman examined 164 rats (*Epimys norvegicus*) from Lyons, of which 32 were infected with *Capillaria gastrica* (Baylis 1926). Three of the infected rats had tumours in the gastric region of the stomach. One tumour, a simple papilloma, had eggs on the surface while the others, which were clearly malignant epitheliomata, had portions of the worms embedded in the neoplastic tissues. D.O.M.

(188b) Brumpt has failed repeatedly to infect *Indoplanorbis exustus* with *Schistosoma mansoni* or *S. bovis* although Liston and Soparkar have shown that it is susceptible to *S. spindale* and Rao has implicated this mollusc as the vector of *S. nasalis*. R.T.L.

(188c) Bothriocephalus infection occurs throughout the Department of Carélie and attains to 78.2% of the population. The fishes which act as

intermediaries are *Lota lota* (100%), *Esox lucius* (88%) and *Perca fluviatilis* (35%). An examination of the dogs in Karaziely showed that 50% were carriers. In some villages the pigs also were frequently infected. Tarassov has failed to confirm Fuhrmann's work on the asexual multiplication of plerocercoids. A case is described in which 143 Bothriocephalus worms were present. Another patient passed six individuals measuring altogether 90 metres.

R.T.L.

(188d) Faure reports a rare case of cysticercosis in a goat in South Tunis. Drawings and measurements are given of the hooks. R.T.L.

(188e) Smorodintzev & Pavlova have examined the protein content of three cestodes, *T. saginata*, *T. solium* and *Diphyllobothrium latum*. The proteins were fractionated in each case and the amounts of albumin, globulin, nuclein, keratin, elastin, collagen and reticulin were determined. The percentages of phosphorus in the nuclein fraction and of sulphur in the keratin fraction were different for each species.

R.H.H.

(188f) Although *Mansonina indiana* has been shown by Galliard to be capable of being infected experimentally with *Filaria bancrofti* the author does not consider it to be an important factor in the spread of the infection in the Delta of Tonkin.

R.T.L.

(188g) By placing desiccated mosquitoes in a mixture composed of equal parts of chloral-lacto-phenol and of 90% alcohol for 1 to 24 hours, according to the fullness of the stomach, microfilariae at all stages of development can be found on dissection.

R.T.L.

(188h) A *Pseudamphistoma* found in the otter in France is compared with *P. truncatum* and *P. danubiense* and named *P. truncatum* var. *lutrae* nov.

R.T.L.

### 189—Annales de la Société Belge de Médecine Tropicale.

- RODHAIN, J., 1936.—“Contribution à l'étude de la localisation ganglionnaire des microfilariae de *Onchocerca volvulus*.” **16** (2), 253-271.
- SANDGROUND, J. H., 1936.—“On the occurrence of a species of *Loa* in monkeys in the Belgian Congo.” **16** (2), 273-278.
- MARBAIX & APPELMANS, 1936. — “Kératite tachetée d'origine filarienne.” **16** (3), 333-341.

(189a) Rodhain has examined histologically 30 lymphatic glands, mostly inguinal, from 10 natives of the Bas-Uélé (Belgian Congo) infected with *Onchocerca volvulus*. He has confirmed the findings of Ouzilleau (1913) and Fülleborn (1913), that microfilariae are present in these glands but, unlike Fülleborn, finds that in most cases the glands do not remain normal but show varying degrees of proliferation of the connective tissue elements, especially around the vessels. Lymphatic stasis was apparent in three cases. The microfilariae are found in lymph spaces in the connective tissue strands of the trabeculae and (in 10 glands) in the capsule, thus showing a special tropism for connective tissue. Hyperplasia is probably due to the irritation produced by innumerable microfilariae after the sensitization of the subject by the adult worms.

B.G.P.

(189b) Sandground reports on a species of *Loa*, possibly *L. loa*, collected by Schouteden from a *Cercopithecus albigena johnstoni* in the Bas Uélé (Belgian Congo). He compares in tabular form the principal measurements of this species, of human *L. loa*, and of the two forms previously recorded from monkeys: *L. papionis* Treadgold, and *L. papionis* St. Pauli Vogel. The differences are of doubtful systematic value. It is suggested that such problems as microfilarial periodicity might be investigated by using *Loa* species in monkeys.

B.G.P.

#### 190—Archiv für Schiffs- und Tropen-Hygiene.

- a. WANG, M. S., 1936.—“Über die Krankheitserscheinungen bei Infektion mit *Fasciolopsis buski*.” 40 (6), 243-255; (7), 295-301.
- b. LINDBERG, K., 1936.—“Draconculese en Iran.” 40 (8), 330-342.
- c. KEIL, E., 1936.—“Zur Behandlung des Filariaanfalles mit Prontosil.” 40 (9), 400-405.

(190a) Wang gives a full account of the symptomatology of Fasciolopsiasis in man. Symptoms appear after an incubation period of 1 to 2 months and take such forms as epigastric pain, intermittent diarrhoea, ascites and oedema. Retardation of growth and development is common in children. Anaemia, albuminuria, icterus, fever, and blood in the stool are not found. The worms probably feed on chyme. Neither acquired immunity nor age immunity is found. In areas of high incidence, the incidence of Ascaris appears to be reduced.

B.G.P.

(190b) The endemic region for Dracontiasis in Iran is Lariston and the neighbouring ports. The disease in Lar is restricted to those months which follow the rainy season. The intermediate host in Iran is *Mesocyclops iranicus*. A useful bibliography of Dracontiasis in Iran, containing 31 titles, is appended to the paper.

R.T.L.

(190c) Prontosil does not materially affect the filarial index but Keil thinks it may prove of value in controlling the sequelae due to streptococcal infection.

R.T.L.

#### 191—Archivio Italiano di Scienze Mediche Coloniali.

- a. MARIANI, G., 1936.—“Un caso di schistosomiasi intestinale a Mogadiscio.” 17 (5), 308-310.
- b. BERTOLINI, G., 1936.—“Sulla bilharziosi del bestiame in Italia. (Un problema parassitologico.)” 17 (5), 311-319.
- c. AMBROSIONI, P., 1936.—“Una forma enzootica nei caprioli da *Trichoccephalus affinis*.” 17 (6), 321-325.
- d. MAZZITELLI, M., 1936.—“Il tetracloruro di carbonio considerato come attivatore diagnostico dei portatori di anchilostoma.” 17 (6), 334-341.
- e. VLACH, G., 1936.—“La filariosi nei cani di Trieste e Provincia.” 17 (7), 418-445.

(191b) Bertolini considers that the schistosome found in cattle in Sardinia differs from *Schistosoma bovis*, as recorded by Barbagallo from sheep and cattle in the Catanian Plain in Sicily, and by Sonsino in Egypt. The principal differences lie (i) in the shape of the egg, which is truly fusiform in the Sardinian type; (ii) in the location of the adults, which are never found

in the bladder in the Sardinian type ; and (iii) in the nature of the lesions, which are maximal around the ileocaecal valve in *S. bovis*, whereas they are found in the rectum and above all in the small intestine in Sardinian cattle. These differences may be of varietal, if not specific, status ; but further information is needed, particularly as to the intermediaries involved in the two Italian islands.

B.G.P.

(191c) Ambrosioni records a severe infestation of a herd of roe deer with *Trichuris affinis*, resulting in several deaths. The worms were very numerous and occurred in the stomach and duodenum as well as in the small intestine.

B.G.P.

(191d) Mazzitelli draws attention to the value of carbon tetrachloride in the diagnosis of hookworm infestation. From a series of 60 suspected carriers it is shown that, although 43 were recorded as negative in a preliminary faecal examination, 12 of these passed hookworm eggs after a dose of the drug. Moreover, although 10 of the 17 original positives became negative after the dose, owing to the anthelmintic action of the drug, yet 2 of these 10 were again positive after a second dose. Hookworm is probably more widely spread than ordinary diagnostic methods would indicate.

B.G.P.

(191e) Out of 115 dogs from the city and Province of Trieste, Vlach found 13 infected with *Dirofilaria immitis*. His data are set out *in extenso* in 18 pages of tables giving the distribution of the dogs by breed, weight, age, sex, health, concurrent diseases and origin, but only the last few pages refer to incidence of filariasis, by breed and locality.

B.G.P.

## 192—Australian Veterinary Journal.

- a. KAUSAL, G., 1936.—“Further studies on the pathogenic importance of *Chabertia ovina*.” 12 (3), 107-110.
- b. GORDON, H. McL. & ROSS, I. C., 1936.—“Medicinal treatment of trichostrongylosis. Efficiency in lambs exposed to continuous infection.” 12 (3), 111-113.
- c. KENNAN, H. C., 1936.—“The effect of carbon tetrachloride on sheep.” 12 (4), 150-153.

(192a) From experimental infections of lambs with *Chabertia ovina* Kauzal shows that in the case of small daily infestations over a long period the severity of the symptoms was not proportional to the rate of infestation. Heavy adult infestations were not obtainable, but in one case over 1,000 immature *C. ovina* were recovered from a lamb carrying *Trichostrongylus* spp. concurrently. Evidence is given to show that immature *C. ovina* ingest considerable quantities of blood.

J.W.G.L.

(192b) Gordon & Ross record an experiment using twelve lambs exposed to daily infection with 4,000 *Trichostrongylus* spp. The three treated with copper sulphate and commercial nicotine sulphate did not develop trichostrongylosis, and those treated with copper sulphate followed by tetrachlorethylene showed high resistance to disease, whereas the lambs vaccinated against *Cl. oviticus* and the controls died within 70 to 141 days.

J.W.G.L.

(192c) Kennan shows from experiments conducted on sheep that there are no ill effects from dosing lambs at fortnightly and monthly intervals with

1 ml. and 5 ml. of carbon tetrachloride in 4 ml. and 16 ml. of liquid paraffin for ten months, and old fluke-free sheep with 1 ml. and 2 ml. carbon tetrachloride every two and four weeks respectively. Ewes dosed with 2 ml. monthly during pregnancy and thereafter for four months, lambred and reared their lambs without showing any ill effects of the drug.

J.W.G.L.

### 193—Berichte des Vereins Schlesischer Ornithologen.

- a. STAMMER, H. J., 1936.—“Die Entoparasiten der in Schlesien 1935 beobachteten Flamingos.” 21 (1/2), 15-17.

(193a) Stammer records from flamingos in Silesia the following helminths: *Hymenolepis megalorchis*, *H. caroli*, *H. liguloides* and *Gynandrotænia stammeri* [see Helm. Abs., Vol. v, No. 90b] from the intestine, and *Echinostomum paraulum* and *Notocotylus linearis* from the caeca. P.A.C.

### 194—Berliner Tierärztliche Wochenschrift.

- a. DOBBERSTEIN, J., 1936.—“Ueber Sektionsbefunde bei den in zoologischen Gärten gehaltenen Tieren.” 1936 (24), 389-392.  
 b. SPREHN, C. S., 1936.—“Ueber die Bekämpfung des kleinen Leberegels *Dicrocoelium lanceatum* mit dreiwertigen Antimonpräparaten. (Vorläufige Mitteilung.)” 1936 (36), 584.  
 c. GUENTHER, D. F., 1936.—“Wurmtoxine und ihre Wirkung im tierischen Organismus.” 1936 (38), 616-618.

(194a) Dobberstein's report on the animal diseases of the Berlin Zoo contains one paragraph (p. 391) relating to helminths. The diseases found were usually due to species indigenous in Germany. Exceptions were paragonimiasis, which is common in the tigers there, and stomach abscesses in elephants caused by spiropterans. Trichinosis was found in bears and badgers. Liver-fluke disease was relatively rare in wild cattle. B.G.P.

(194b) Sprehn finds that dosing with the trivalent antimony preparation “Fouadin” is a successful method of controlling *Dicrocoelium lanceatum* in sheep. He recommends giving two intramuscular injections of 20 c.c. of Fouadin on two successive days. On the second to fourth days after treatment the number of eggs in the faeces is increased, but by the tenth to twelfth days after treatment, the faeces are completely free from *D. lanceatum* eggs.

K.S.

(194c) Guenther discusses critically the nature and effect on the host of toxins produced by parasitic worms, either by metabolic processes during the life of the helminth or as a result of decay after death. R.H.H.

### 195—Boletín de la Asociación Médica de Puerto Rico.

- a. RODRIGUEZ-MOLINA, R., 1936.—“Schistosomiasis mansoni, cirrhosis of the liver with splenomegaly and macrocytic anemia.” 28 (6), 119-120.  
 b. RODRIGUEZ-MOLINA, R., 1936.—“Anemia in Schistosomiasis mansoni and its treatment in Puerto Rico.” 28 (7), 146-151.

## 196—Bulletin de l'Académie de Médecine.

- a. DELBET, P., 1936.—“Sur la nocivité du pain blanc.” **115** (6), 267-271.

(196a) Delbet's article is only indirectly of helminthological interest, since he quotes Passey's experiments (in which *Gongylonema* and dietary deficiencies jointly produced neoplastic changes in the stomachs of rats) to support his view that white bread is conducive to cancer owing to its poverty in magnesium.

B.G.P.

## 197—Bulletin de l'Académie Vétérinaire de France.

- a. BALOZET, L., 1936.—“Sur un *Brachylaemus* de l'intestin du porc.” **9** (1), 93-99.

(197a) During an investigation of an outbreak of hog cholera in Tunis, Balozet observed large numbers of a new trematode here described and named *Brachylaemus suis* n. sp. It is very similar to *B. erinacei* (E. Blanchard, 1847).

R.T.L.

## 198—Bulletin Mensuel de l'Office International d'Hygiène Publique.

- a. LUTRARIO, A., ILVENTO, A. & MAZZITELLI, M., 1936.—“La diffusion actuelle de l'ankylostomiasis en Italie et dans ses colonies.” **28** (8), 1488-1499.  
 b. CUMMING, H. S., 1936.—“L'ankylostomiasis aux États-Unis.” **28** (8), 1500-1508.  
 c. KHALIL ABDEL KHALEK, 1936.—“La pollution du sol par les ankylostomes en Égypte.” **28** (8), 1509-1510.  
 d. RUSSELL, A. J. H., 1936.—“Sur l'ankylostomiasis dans l'Inde Britannique.” **28** (8), 1511-1512.  
 e. TIMBAL, G., 1936.—“L'ankylostomiasis en Belgique.” **28** (8), 1513-1515.  
 f. MORGAN, M. T., 1936.—“L'ankylostomiasis en Grande-Bretagne.” **28** (8), 1516-1517.  
 g. JUITA, N. M. J., 1936.—“Quelques données sur l'ankylostomiasis en Hollande.” **28** (8), 1518-1520.  
 h. PODIAPOLSKA, 1936.—“L'ankylostomiasis en U.R.S.S.” **28** (8), 1521-1524.

## 199—Bulletin de la Société Médico-Chirurgicale de l'Indochine.

- a. GALLIARD, H., 1936.—“La filariose à *Wuchereria bancrofti* dans la région de Hanoi (Tonkin).” **14** (5), 439-441.  
 b. GALLIARD, H., 1936.—“Un nouveau cas distomatose pancréatique à *Clonorchis sinensis*.” **14** (5), 442-443.  
 c. GALLIARD, H., AUTRET, M. & PHAN-HUY-QUAT, 1936.—“Recherches sur l'insuffisance hépatique dans la distomatose à *Clonorchis sinensis* au Tonkin.” **14** (5), 444-447.

## 200—Bulletin de la Société de Pathologie Exotique.

- a. JOLLY, A., 1936.—“L'anémie pernicieuse progressive et la cachexie aqueuse dans l'uncinariose. Considérations générales et aspect clinique.” **29** (7), 785-798.

## 201—Bulletin de la Station Biologique d'Arcachon.

- a. STEFANSKI, W., 1936.—“Sur les nématodes parasites des vives *Trachinus draco* et des baudroise *Lophius piscatorius*.” **33**, 59-88.

(201a) Stefański describes two larval ascaroids of the type formerly known as *Ascaris capsularia* from *Trachinus draco* and *Lophius piscatorius*. Both parasites appear under the serous membranes of the peritoneal cavity and occur equally in each host. One is referred to the genus *Contracaecum*, the other to the sub-family Acanthocheilinae. *Contracaecum rigidum* (Rud.), *C. lophii* Schuurmans Stekhoven from the intestine of *Lophius piscatorius*, and *Contracaecum auctum* (Rud.) from the intestine of *Trachinus draco*, are severally described and figured. **E.M.S.**

## 202—Calcutta Medical Journal.

- a. SEN, S. C., 1936.—“Development of adult taenia echinococci in a hydatid cyst in the muscle of a sheep.” **31** (1), 38-40.  
 b. RAY, P. N., 1936.—“Some observations on filariasis and its complications.” **31** (3), 121-131.

## 203—Canadian Journal of Research. Section C. Botanical Sciences.

- a. BERKELEY, G. H., 1936.—“Root rots of the raspberry.” **14** (8), 306-317.

(203a) In this paper by Berkeley, mainly devoted to fungi associated with root rots of raspberry, brief mention is made of the discovery of *Anguilulina pratensis*, and its association with necrotic lesions on raspberry roots from certain affected fields. It is considered that this nematode may be parasitic on raspberry roots. **T.G.**

## 204—Canadian Journal of Research. Section D. Zoological Sciences.

- a. CAMERON, T. W. M., 1936.—“Studies on the Heterophyid trematode, *Apophallus venustus* (Ransom, 1920) in Canada. Part I. Morphology and taxonomy.” **14** (6), 59-69.  
 b. PARRELL, I. W., 1936.—“Studies on the bionomics and control of the bursate nematodes of horses and sheep. II. Technique.” **14** (7), 71-81.  
 c. SWALES, W. E., 1936.—“Further studies on *Fascioloides magna* (Bassi, 1875) Ward, 1917, as a parasite of ruminants.” **14** (8), 83-95.

(204a) *Apophallus venustus* (Ransom, 1920) occurs in the cat, dog, racoon and heron in the lower Ottawa Valley, and is common in cats in Ste. Anne de Bellevue, Quebec. A detailed description is given of the morphology of the adult worm, and its nomenclatural position is discussed at length. **R.T.L.**

(204b) Parnell describes the technique he has evolved to facilitate the comparative testing of the lethal properties of various solutions or powders on the free-living stages of the bursate nematodes present in horse faeces. Methods of control are given and the significance of the results discussed. **J.W.G.L.**

(204c) The cellular basis of the defence reactions to infections with *Fascioloides magna* has been studied by Swales in *Cervus canadensis*, *Odocoileus virginianus*, *Bos taurus*, *Bison bison*, *B. taurus* × *B. bison* and *Ovis aries*. The author has found further support for the hypothesis that the Cervidae are normal hosts of the parasite and that the life-cycle can be successfully completed in these hosts. In the Bovidae the parasites are completely encapsulated in the liver and their further development prevented, while in sheep the migration of the parasites is unchecked and a few worms may produce severe clinical disease.

D.O.M.

## 205—Clinica Veterinaria.

- a. CANU, L., 1936.—“Osservazioni sulle elmintiasi degli agnelli e loro trattamento.” Anno 59 (1), 60-65.

(205a) From his observations on three flocks of 64, 47 and 35 sheep in Sardinia, Canu concludes that intestinal (rather than gastro-intestinal) trichostrongyles and tapeworms, invariably in mixed infection, are responsible for the widespread helminthiasis found there. He finds that either carbon tetrachloride or copper sulphate and sodium arsenite are satisfactory anthelmintics.

B.G.P.

## 206—Cornell Veterinarian.

- a. LEVINE, P. P., 1936.—“The treatment of ascariasis in chickens.” 26 (2), 120-127.  
b. STOLL, N. R., 1936.—“Certain net effects in helminthic parasitism, with special reference to the sheep host.” 26 (2), 171-179.

(206a) Levine finds that the feeding of tobacco dust, containing from 2 to 8% nicotine sulphate in the mash is not effective in preventing infection with *Ascaridia lineata* in chickens. It is very toxic. A single dose of Black Leaf Powder may sometimes remove an infestation already present, but continuous feeding for four weeks has no effect on the adult worm. P.A.C.

(206b) Stoll summarizes the results of his observations on helminth-free lambs exposed to a continuous intake of infective nematodes when the fate of these infections has been carefully followed by counting the eggs in the faeces. Lambs and sheep exposed to reinfection with *Haemonchus contortus* develop increasing infections which elicit a host response of “self-cure and protection.” This ordinarily protects against future exposure to *Haemonchus*. This immunity may, however, break down in the ram at the breeding season or in the ewe during reproduction and especially at lactation. An already protected animal can withstand infections which prove fatal to others not so protected. On pastures with mixed infections these *Haemonchus*-resistant animals fail to develop heavy infections with these various species, but this is not taken as evidence of a non-specific immunity. This effect is not to be ascribed to age resistance alone. Reinfection plays a part in aiding in the expulsion of worms by the host and in maintaining the titre of immunity if the intake is continued; or, at a definite rate, the effect on the parasite population becomes analogous to bacterial multiplication within the host and thus definitely homologizes the worm-host problem with that of the process of

bacterial infection. Other nematode infections of sheep show similar net effects in mixed pasture infestations. In species which are skin penetrators the resistant state developed by this route is effective against oral infection and vice versa.

A low rate of pick-up of parasites tends to develop a resistance while a high rate tends to overwhelm the host before the immune mechanism functions, but the higher the rate which the host successfully resists the better the quality of the resistance afforded. On the question of the influence of nutrition Stoll gives the opinion that the relationship of the nutritional state to the verminous state has not yet been *definitely* demonstrated. It is possible that certain host strains have a greater initial susceptibility and ability to develop resistance to worm infestations than others. R.T.L.

#### 207—Deutsche Tierärztliche Wochenschrift.

- a. WETZEL, R. & ENIGK, K., 1936.—“Zur Wurmfauna des Elches.” **44** (34), 576-577.
- b. SCHOOP, G. & DEDIÉ, K., 1936.—“Der Darmsaugwurm *Tocotrema lingua* bei deutschen Silberfuchsen.” **44** (34), 579-581.

(207a) Wetzel & Enigk present the following records of helminths not previously reported from *Alces alces*, the European elk:—*Fasciola hepatica*, *Moniezia* sp., *Haemonchus contortus*, *Ostertagia circumcincta*, *Nematodirus* sp., *Muellerius capillaris*, and an immature filariid from the spinal cord. B.G.P.

(207b) Schoop & Dedié record *Tocotrema lingua* from 12 silver foxes in Germany. They briefly describe the parasite (which was particularly numerous throughout the small intestine of one fox that had died of gastro-enteritis), and its life-history and control. They found that tetrachlor-ethylene was a valuable remedy in a dose of 0.5 c.c. per kg. body weight.

B.G.P.

#### 208—East African Medical Journal.

- a. TRIM, E. A., 1936.—“Schistosomal cirrhosis and splenomegaly in the Central Kavirondo district of Kenya Colony.” **13** (5), 130-141.

#### 209—Giornale Italiano di Malattie Esotiche e Tropicali ed Igiene Coloniale.

- a. DI AICHELBURG, U., 1936.—“I fenomeni immunitari nelle elmintiasi.” **9** (4), 67-70, 73-75, 77.

(209a) Di Aichelburg reviews the literature dealing with helminthic immunity. He deals with natural and acquired immunities with humoral reactions and anaphylaxis. The whole of the recent literature is referred to but unfortunately only in the text and a general list is not given. P.A.C.

#### 210—Illinois Biological Monographs.

- a. MACKIN, J. G., 1936.—“Studies on the morphology and life history of nematodes in the genus *Spironoura*.” **14** (3), 1-64.
- b. BENNETT, H. J., 1936.—“The life history of *Cotylophoron cotylophorum* a trematode from ruminants.” **14** (4), 1-119.

(210a) The anatomy and histology of *Spironoura chelydrae* (Harwood, 1932) has been studied in detail by Mackin. He shows that "nematode formulae" are practically valueless in determining species. Two further species, viz., *S. wardi* n. sp. and *S. concinnae* n. sp. are described and a key to the 8 North American *Spironoura* spp. is given. R.T.L.

(210b) *Cotylophoron cotylophorum* is recorded from the North American mainland for the first time. In Louisiana *Fossaria parva* is the natural intermediate host. *F. modicella* is also efficient. The eggs take from 11 to 29 days to hatch. The sporocyst produces 9 rediae and each redia approximately 25 cercariae. The cercariae leave the redia in an undeveloped state and continue their differentiation in the liver and ovo-testis. Infected snails shed cercariae in from 30 to 91 days. Encystment occurs on vegetation and the metacercariae live for over 3 months. Excystment occurs in the duodenum. Migration to the rumen begins on the 21st day and the worms attain sexual maturity at the age of about 3½ months so that the life cycle requires from 5 to 8 months. The adults reach their full size in about a year. R.T.L.

## 211—Indian Medical Gazette.

- a. MOORTHY, V. N. & SWEET, W. C., 1936.—"A note on the experimental infection of dogs with Dracontiasis." 71 (8), 437-442.
- b. MAPLESTONE, P. A. & BHADURI, V. N., 1936.—"Cholera and intestinal helminths." 71 (8), 449-450.

(211a) Moorthy & Sweet report remarkably successful results in experimental infection of dogs with Guinea worm by administering infected cyclops. One year after infection four mature female Guinea worms were found in the "external" tissues of a dog. From four other dogs large numbers of females and several males were recovered after periods ranging from 67 to 144 days. Several microphotos of the worms are reproduced. R.T.L.

(211b) From a study of 100 cases of cholera, Maplestone & Bhaduri conclude that this disease has very little if any effect in ridding the patient of intestinal helminths. R.T.L.

## 212—Indian Veterinary Journal.

- a. RAJU, V. K., 1936.—"Veterinary diseases referred to public health." 13 (1), 22-25.
- b. KUPPUSAMY, A. R., 1936.—"Leucocytozoa and microfilariae of fowls and *Haemoproteus columbae* of pigeons in Province Wellesley." 13 (1), 25-35.
- c. BAPU, S. R., 1936.—"A short note on elephants and a few of their common diseases." 13 (1), 36-43.

(212a) In this extremely brief article, Raju mentions in a few words some of the helminthic parasites which may be transmitted from domesticated animals to man. B.G.P.

(212b) Kuppusamy records the presence of leucocytozoa and an unidentified microfilaria from some domestic birds in Malay. The vector is probably a species of Culicidae as these abound in the district. P.A.C.

(212c) The common helminths of Indian elephants are said by Bapu to be the following: *Ascaris lonchoptera*, two species of *Uncinaria*, amphistomes, and *Fasciola jacksoni*. Heavily infested elephants eat soil and so precipitate a therapeutic attack of diarrhoea. Bapu pleads for some instruction on at least the major diseases of elephants in the Indian veterinary colleges.

B.G.P.

**213—International Congress (3rd) of Comparative Pathology.  
Athens.**

- a. DÉVÉ, F., 1936.—“L'échinococcosis expérimentale.” 1 (1), Reports, Section of Human Medicine, pp. 1-23. [French summary pp. 24-26.]
- b. POSSELT, A., 1936.—“Über die Natur des Echinococcus alveolaris und seine Beziehung zum Echinococcus hidatidosus.” 1 (1), Reports, Section of Human Medicine, pp. 27-52. [French summary pp. 53-55.]
- c. CASTEX, M. R. & GREENWAY, D., 1936.—“Algunas consideraciones sobre la hidatidosis en la Argentina. Estudio clínico y demográfico.” 1 (1), Reports, Section of Human Medicine, pp. 56-94. [French summary p. 95.]
- d. TENHAEFF, C. & FERWERDA, S., 1936.—“Die Echinokokkenkrankheit bei den Haustieren.” 1 (1), Reports, Section of Veterinary Medicine, pp. 3-22. [French summary pp. 23-24.]

(213a) Dévé reviews recent experimental work on the cystic form of hydatid. After an historical survey he brings under consideration (i) the hatching and migration of the embryo and its development in various organs; (ii) secondary hydatidosis, which he subdivides into five types: local, diffuse, serous, embolic, and mucous; (iii) biology (including the metamorphosis of scolices into cysts *in vitro*), pathology, and therapy.

B.G.P.

(213b) Discussing alveolar hydatid, Posselt considers that it is the larval form of a species distinct from cystic hydatid. He marshals his arguments under three main headings: (i) Geographical. The alveolar form is common in Bavaria and northern Tyrol where the cystic form is unknown. (ii) Pathological. He lists various differences in the development of the parasite and in the nature of the host-reactions, and denies that intermediate or mixed types occur. (iii) Parasitological. Morphological and biological differences in larval and adult stages are discussed.

B.G.P.

(213d) Tenhaeff & Ferwerda discuss the host-distribution of hydatid in Friesland, where it is very common. The draught-dogs so much used in that district are mainly responsible for its dissemination, rather than watch dogs. The steep fall in incidence in various domestic animals during the decade beginning 1924 is illustrated in a logarithmic graph. In 1934 pigs show the lowest incidence and horses the highest, but the greatest fall is shown by sheep: from 24% to 1%.

B.G.P.

**214—Journal of the American Veterinary Medical Association.**

- a. THOMPSON, J. E., 1936.—“Some observations on the European broad fish tapeworm *Diphyllobothrium latum*.” 89 (1), 77-86.
- b. BEAUDETTE, F. R. & HUDSON, C. B., 1936.—“Parasitism and tuberculosis in a crow.” 89 (2), 215-217.
- c. JERSTAD, A. C., 1936.—“The gizzard worm, *Amidostomum anseris*, of geese in Western Washington. Reports of cases.” 89 (3), 318-320.

(214a) Shagawa Lake is receiving ova of *Diphyllobothrium latum* in great numbers in the sewage discharged by an Imhoff tank from the city of Ely. More than ten cases of human infection are annually reported and are confined to the Finn inhabitants probably because brine-pickled fish is a Finnish national dish. This tapeworm is the commonest cestode in the local dogs. *Cyclops strenuus* and *C. prasinus* are the effective intermediate hosts and the plerocercoids occur in the northern pike. 100% of the young fish in the lake are infected. Although the Imhoff tank may reduce the number of ova in sewage effluent Thompson succeeded in finding them in two out of twenty daily samples.

R.T.L.

(214b) Beaudette & Hudson record *Acuaria anthuris* from the gizzards of two crows in New Jersey, and the presence of sheathed microfilariae from a blood film of one of these crows. A third crow was examined alive and found to contain microfilariae in its blood at night. Post mortem revealed tuberculosis of the carpal joint but no adult filariae were found. J.W.G.L.

(214c) Jerstad reports the presence of *Amidostomum anseris* in five geese in Washington. Two of the birds had been recently imported from England but the others were native to the State. In three cases the presence of the worm is believed to have caused death. One case was successfully treated with  $CCl_4$ . P.A.C.

## 215—Journal of the Chosen Medical Association.

- a. YAMASAKI, Y., 1936.—“Das Ergebnis der Parasiteneier-Untersuchungen des Verdauungssorgans von Bewohner im Suigen Gegend.” 26 (5), 464-468. [In Japanese : English summary p. 25.]
- b. NAKATA, K., 1936.—“On the development of the embryos of *Ascaris lumbricoides* in the egg shell.” 26 (6), 509-520. [In Japanese : English summary p. 28.]
- c. OGURA, K., 1936.—“Studies on the *Hymenolepis nana* in Korea.” 26 (7), 649-668. [In Japanese : English summary pp. 35-36.]

(215b) Embryonated *Ascaris lumbricoides* eggs are only infective after the appearance of motile embryos which have moulted once in the shell. In mice lung invasion occurs only after eggs have been cultured for 35 days. The infective larvae are characterized by the appearance of the excretory organ and moulting in the region of the head together with the disappearance of the winding of the oesophageal lumen. R.T.L.

(215c) Since Ogura has experimentally infected two children with *Hymenolepis fraterna* from wild rats, and has infected rats and mice with *H. nana* from a child, and has found the two species morphologically indistinguishable, he concludes that they are probably identical. Rats on a diet deficient in vitamins A and D harbour more worms than do controls, but rats on a normal diet are nevertheless readily infected. B.G.P.

## 216—Journal of Comparative Pathology and Therapeutics.

- a. DUNGAL, N. & GISLASON, G., 1936.—“Nematodes in sheep in Iceland. Experiences with carbon tetrachloride drenches.” 49 (3), 210-217.

(216a) Dungal & Gislason report the presence of the following nematodes in Icelandic sheep : *Ostertagia circumcincta*, *Nematodirus filicollis*,

*Bunostomum trigonocephalum*, *Trichocephalus dispar*, *Oesophagostomum venulosum* and *Chabertia ovina*, of which the most pathogenic are *Bunostomum trigonocephalum* and *Chabertia ovina*. The anthelmintic action of chenopodium oil, Cooper's arsenic tablets, copper sulphate 1% solution, tobacco leaves and carbon tetrachloride has been tested against these nematodes, and carbon tetrachloride proved to be the most efficient. After administering this drug to sheep all over the country for a period of two years, reports from the farmers have shown a striking improvement in the condition of the sheep. Adults were given 5 c.c. and lambs 4 c.c. after 48 hours fasting, and food was not given again until 24 hours after dosing. Losses from intoxication were very small. K.S.

## 217—Journal of the Egyptian Medical Association.

- a. KHALIL, M., 1936.—“Individual variation in the excretion of drugs as an important factor in their therapeutic results. A practical method for detecting the schistosomiasis cases with so-called idiosyncrasies to antimony to avoid fatalities and complications.” 19 (6), 285-305; (8) 502-510.
- b. KHALIL, M. & AZIM, M. A., 1936.—“An epidemic-like increase of mortality due to intestinal schistosomiasis in an Egyptian village.” 19 (8), 475-495.

## 218—Journal of Helminthology.

- a. LEIPER, R. T., 1936.—“Some experiments and observations on the longevity of *Diphyllobothrium* infections.” 14 (3), 127-130.
- b. CLAPHAM, P. A., 1936.—“*Hymenolepis chrysolampidis* n. sp., a parasite of *Chrysolampis mosquatus* of Brazil.” 14 (3), 131-134.
- c. PENFOLD, W. J., PENFOLD, H. B. & PHILLIPS, M., 1936.—“Ridding pasture of *Taenia saginata* ova by grazing cattle or sheep.” 14 (3), 135-140.
- d. BHALERAO, G. D., 1936.—“On some representatives of the cestode genus *Avitellina* from India.” 14 (3), 141-162.
- e. BHALERAO, G. D., 1936.—“Studies on the helminths of India. Trematoda I.” 14 (3), 163-180.

(218a) Leiper gives details of an experimental infection of man with *Diphyllobothrium latum* extending over 5 years and of a dog with *D. mansoni* extending over 8 years in reply to an article by Ward (1935) in which it was suggested that the accepted views on the longevity of these tapeworms were erroneous. R.T.L.

(218c) By using sheep and cattle to graze pastures infected with *Taenia saginata* eggs in sewage the infection can be removed. Sheep are not subject to infection with *Cysticercus bovis*. Infections in cattle occur but the degree of contamination was reduced by grazing to 0.6% of the original number of effective accessible eggs. R.T.L.

(218d) A key is given for the 10 known species of *Avitellina*. Of these two, viz., *A. woodlandi* and *A. tafia*, both from Indian goats, are described for the first time. Additional data are provided regarding the structure of *A. sudanea*, *A. lahorensis* and *A. chalmersi*. The development of the female genitalia in this genus is described for the first time. R.T.L.

(218e) *Eurytrema pancreaticum* and its varieties are described. The genus is subdivided into five subgenera of which four are new, viz., *Skrjabinus*,

*Lubens, Concinnum* and *Conspicuum*. For the homonym *E. parvum* Travassos, 1916 the name *E. travassosi* is suggested. *Paradistomum moghei* from *Calotes versicolor* and *Mesocoelium leiperi* from *Tropidonotus piscator* are new species.

R.T.L.

## 219—Journal de Médecine de Bordeaux.

- a. DERVILLÉE, P., 1936.—“L'intoxication expérimentale par le tétrachlorure de carbone. Données générales et recherches personnelles.” **113** (4), 91-102.

## 220—Journal of Oriental Medicine.

- a. RYO, SAI, 1936.—“A survey of the distribution of helminthic and protozoan parasites among 10293 inhabitants of Fushun.” **24** (6), 81.

## 221—Journal of Parasitology.

- a. DAVIS, D. J., 1936.—“Pathological studies on the penetration of the cercaria of the strigeid trematode, *Diplostomum flexicaudum*.” **22** (4), 329-337.
- b. STUNKARD, H. W., 1936.—“The morphology and life history of *Plagitura parva* Stunkard, 1933, (Trematoda).” **22** (4), 354-374.
- c. GOWER, C., 1936.—“New sporocyst of *Leucochloridium* from Louisiana.” **22** (4), 375-378.
- d. MARSH, H., 1936.—“Observations based on weekly parasite egg counts on feces of lambs and yearling sheep.” **22** (4), 379-385.
- e. STOLL, N. R., 1936.—“Observations on cattle nematode infections, with a demonstration of their secondary transmission to grazing sheep.” **22** (4), 386-407.
- f. COATNEY, G. R., 1936.—“Some notes on cestodes from Nebraska.” **22** (4), 409.
- g. REYNOLDS, B. D., 1936.—“A new host for *Leucochloridium dryobatae*.” **22** (4), 409-410.
- h. PORTER, D. A., 1936.—“The ingestion of the inflammatory exudate by swine lungworms.” **22** (4), 411-412.
- i. BYRD, E. E., 1936.—“A new trematode parasite from the mud-turtle, *Kinosternon subrubrum hippocrepis* (Gray).” **22** (4), 413-415.

(221a) Davis has experimentally studied the pathological effects of the penetration of the cercariae of *Diplostomum flexicaudum* into frog and toad tadpoles. When exposed to infection by sufficient numbers of these cercariae the tadpoles are killed. Recently metamorphosed frogs were not affected although exposed to large numbers over a long period of time; but when the skin of a leg was removed infection caused death within a few hours. It is evident that some change in the skin which occurs at metamorphosis renders it immune to penetration. Either the skin becomes too thick and horny for the cercariae to pierce or the mucous and poison gland secretions kill or inactivate them. The host resists invasion by an outpouring of leucocytes, but is not always successful.

R.T.L.

(221b) Stunkard describes all the stages in the life-cycle of *Plagitura parva*, a parasite of the newt *Triturus viridescens*. The species *P. parva* and *P. salamandra* are compared. After discussing the systematic position of the genus *Plagitura*, the validity of which appears doubtful, the author concludes that, as it is impossible at present to determine whether either *Zeugorhynchus* or

*Plagitura* is synonymous with *Manodistomum*, all these three generic names should be retained until further evidence is available. R.T.L.

(221c) Gower describes, from Louisiana, a larval stage of *Leucocladidium* with colouration differing from the twelve species which have been described from North America. R.T.L.

(221d) Marsh records a seasonal cycle of the egg production of *Ostertagia*, *Nematodirus* and *Moniezia* as indicated by faecal counts. The age at which the eggs first appear in the faeces of lambs is also noted. The observations were made at the Montana Experiment Station, U.S.A. In *Ostertagia* there was a summer peak in August for lambs and in September for yearlings followed by a sharp drop in the following month. In lambs the earliest appearance of *Ostertagia* eggs was at 22 days, of *Nematodirus* at 27 days and of *Moniezia* eggs at 141 days, after birth. R.T.L.

(221e) A new pasture, free from helminth infestation, was stocked with calves. These introduced eleven species of nematodes. Worm-free lambs, introduced later, acquired infection with eight species. Stoll draws attention to the relative infrequency of outbreaks of nematode infestations in cattle. Although the species parasitizing cattle, sheep and goats are largely identical little inquiry has been made as to the possibility of host-strains. R.T.L.

(221f) Three triradiate and one tetraradiate *Dipylidium caninum* have been found by Coatney in a collection of 120 normal specimens from a bulldog. *Mesocestoides lineatus* is recorded from the dog and from the racoon in North America. R.T.L.

(221h) Porter is of opinion that *Metastrongylus* spp. are incapable of lacerating the lung tissues and that the red blood cells and leucocytes found in the gut of these parasites are merely elements of inflammatory exudate which they have ingested. R.T.L.

(221i) *Cercorchis kinosterni* n. sp. is described from *Kinosternon subrubrum hippocrepis*. The description given of the excretory system is the first account available for any member of the Telorchiinae. The flame cell pattern is common to the Telorchiinae and the Plagiornchiidae. This supports the views concerning their relationships recently advanced by McMullen in 1934. R.T.L.

## 222—Journal of Pathology and Bacteriology.

- a. CAMERON, G. R. & KARUNARATNE, W. A. E., 1936.—“Carbon tetrachloride cirrhosis in relation to liver regeneration.” *42* (1), 1-21.

## 223—Journal of the Philippine Islands Medical Association.

- a. NOLASCO, J. O. & AFRICA, C. M., 1936.—“A fatal case of paralytic ileus associated with severe strongyloides infestation suggesting internal auto-infection.” *16* (5), 275-283.
- b. AFRICA, C. M. & GARCIA, E. Y., 1936.—“Embryonated eggs of *Ascaris lumbricoides* in the mesenteric tissue of man, with special reference to the possibility of autoinfestation.” *16* (8), 461-467.

(223b) Africa & Garcia report the occurrence in an elderly patient of *Ascaris* causing obstruction and rupture of the small intestine. Developing *Ascaris* eggs were found in small lesions in the mesentery. They suggest that there may be a possibility of autoinfection under such conditions. P.A.C.

## 224—Journal of the Shanghai Science Institute. Section IV.

- a. KOMIYA, Y., KAWANA, H. & TAO, C. S., 1936.—“On the prevalence of helminthiasis among the Japanese and Chinese in the district of Shanghai. 2. Results of examinations of helminths ova among the Japanese and Chinese servants and cooks in restaurants and cafés.” 2, 95-107.
- b. TAO, C. S., 1936.—“Transmission of helminths ova by flies.” 2, 109-116.
- c. KOMIYA, Y., KAWANA, H. & TAO, C. S., 1936.—“On the prevalence of helminthiasis among the Japanese and Chinese in the district of Shanghai. 3. Results of examinations of helminths ova among the Japanese primary school children.” 2, 117-138.
- d. KOMIYA, Y., KAWANA, H. & TAO, C. S., 1936.—“On the prevalence of helminthiasis among the Japanese and Chinese in the district of Shanghai. 4. Results of examinations of helminths ova among the Japanese students of the Girls High School, Commercial School and Tung Wen College.” 2, 139-154.
- e. KOMIYA, Y. & KAWANA, H., 1936.—“Study on *Clonorchis sinensis* in the district of Shanghai. 4. The second intermediate hosts of *Clonorchis*.” 2, 155-167.
- f. TAJIMI, T., 1936.—“On the prevalence of helminthiasis among the Japanese and Chinese in the district of Shanghai. 5. Results of examinations of helminths ova among Japanese kindergarten children and their family-members.” 2, 169-183.

(224b) Tao has studied the ability of flies to act as mechanical conveyers of the ova of parasitic nematodes. By means of 64 fly-traps distributed in various places in Shanghai City the author collected, at different times, 146,563 flies, chiefly *Musca*, *Compsomyia* and *Lucilia* spp. Eggs of *Ascaris*, *Trichocelphalus* and *Ancylostoma* were demonstrated in the liquid within the traps from 8 different places and in dissections of the gut in 12 out of 206 flies caught in the neighbourhood of latrines. Under natural conditions eggs were not found on the flies' legs although they adhered to the legs of insects artificially contaminated. The author believes the alimentary canal plays a greater part in the dissemination of helminth ova than do the wings and legs of the fly.

J.N.O.

(224c) Out of 15 species of fresh-water fish ordinarily marketed in Shanghai 10 were experimentally proved to be the intermediate hosts of *Clonorchis*. Of these three are new hosts, viz., *Culter alburnus*, *Parapelecus argenteus* and *Elopichthys bambusa*.

R.T.L.

## 225—Journal of Tropical Medicine and Hygiene.

- a. CAWSTON, F. G., 1936.—“Destruction of the bilharzia parasites of man.” 39 (13), 150-152.
- b. SPIRIDION, J. T., 1936.—“Schistosomiasis japonica: an account of an outbreak.” 39 (14), 161-164.
- c. BINDRA, B. S., 1936.—“The treatment of schistosomiasis.” 39 (15), 175-179; (16), 185-190.
- d. CAWSTON, F. G., 1936.—“The duration of treatment for bilharziasis.” 39 (18), 212-213.

(225a) Cawston reports cases of bilharziasis treated with Stibilase, Trystibine and Anthiomaline. He concludes that intravenous injections with antimonium potassium tartrate in non-toxic doses is still the method of choice until an adequate number of cases have been treated to determine the total dose necessary and if individual cases are resistant.

R.T.L.

(225b) Twelve sailors belonging to a British gunboat contracted schistosomiasis by bathing off the ship as she lay some distance from the shore at Chinkiang in the lower Yangtse River. Three of the cases which had neurological symptoms, are described in detail. R.T.L.

(225c) This communication, published in two parts, gives a detailed summary of the literature on the treatment of schistosomiasis based on a bibliography containing 88 entries. R.T.L.

## 226—Journal of the Washington Academy of Sciences.

- a. DIKMANS, G., 1936.—“A note on *Dictyocaulus* from domestic and wild ruminants.” **26** (7), 298-303.

(226a) In a short note on *Dictyocaulus*, illustrated by drawings showing variability in position and in terminal digitations of the dorsal ray in *D. viviparus*, Dikmans reduces *D. hadweni* Chapin, 1925 (from bison) to the synonymy of *D. viviparus*. The same fate probably should overtake *D. khawi* Hsü, 1935 (from pig) and *D. eckerti* Skrjabin, 1931 (from reindeer); whilst *D. unequalis* Bhalerao, 1932 (from Tibetan sheep) is probably a synonym of *D. filaria*. B.G.P.

## 227—Leaflet. United States Department of Agriculture.

- a. SCHWARTZ, B., 1936.—“Controlling lungworms of swine.” No. 118, 5 pp.

(227a) After briefly describing the appearance and life-history of the pig lungworms, Schwartz suggests for their control (i) nose-ringing, to discourage rooting for earthworms, (ii) adequate rations, (iii) the use of temporary pastures kept free from boards, logs and boxes, under which earthworms collect. Bare runs, ill-kept sties with dirt floors, and low-lying wet areas, are all to be avoided. B.G.P.

## 228—Marseille Médical.

- a. PALAIS, M., 1936.—“Recherches sur les parasites de souris à Marseille.” **73** (16), 763-765.

(228a) Of 124 examples of *Mus musculus* examined in the Port of Marseilles 2 contained *Catenotaenia pusilla*, 16 *Hymenolepis microstoma*, 5 *Cysticercus fasciolaris*, 2 *Trichuris muris*, 2 *Capillaria hepatica*, 22 *Syphacia obvelata* and 3 *Protospirura muris*. Of 76 *M. musculus* from the Château du Pharo 40 contained *Syphacia obvelata* and 1 *Cysticercus fasciolaris*. R.T.L.

## 229—Medical Parasitology and Parasitic Diseases.

- a. BORINE, J., 1936.—“Observations cliniques de 45 cas de Trichinose.” **5** (1), 123-128. [In Russian : French title only.]

## 230—Medicina de los Paises Cálidos.

- a. GOYANES, J., 1936.—“Hallazgo de *Trichosomoides crassicaudae*, Bellingham [Bellingham] 1840, en las ratas de Madrid.” 9 (7), 305-307.

(230a) Goyanes records *Trichosomoides crassicauda* from the bladders of black rats which were being used for anaemia experiments. B.G.P.

## 231—Mémoires du Musée Royal d'Histoire Naturelle de Belgique.

- a. SCHUURMANS STEKHOVEN, jr., J. H., 1936.—“Quelques observations sur l'anguillulose des *Hydrangea* et son traitement.” Ser. 2, Fasc. 3, 13-14.

(231a) Schuurmans Stekhoven reports the complete cure of a *Hydrangea* plant attacked by *Anguillulina dipsaci* merely by keeping it for some days in a warm greenhouse the temperature of which reached 97° to 100°F. for a few hours in the middle of the day. Symptoms of disease disappeared and new growths were free from the parasite. T.G.

## 232—Memorias do Instituto Oswaldo Cruz.

- a. LENT, H. & FREITAS, J. F. TEIXEIRA DE, 1936.—“Novo parasito de Agouti pacá (L.) (Nematoda : Strongyoidea).” 31 (2), 357-359.

(232a) Lent & Freitas describe and figure *Longistriata brevispicula* n. sp. from the small intestine of the agouti in Brazil. In having short spicules it resembles Travassos' *L. dubia* and Mönnig's *L. spira*. B.G.P.

## 233—Nature. London.

- a. STILES, C. W., 1936.—“Suggested cases for suspension of rules of nomenclature.” 138 (3479), 34-35.

- b. VERMA, S. C., 1936.—“A new strigeid parasite of the rare genus *Cyathocotyle*.” 138 (3492), 589.

(233a) This also appeared in Science, 83 (2162), 552-553 [see Helm. Abs., Vol. v, No. 157a].

(233b) Verma describes *Cyathocotyle calvusi* n. sp. from the intestine of the King vulture, *Torgos calvus*, United Provinces. It is the largest known species of the genus. E.M.S.

## 234—New Zealand Journal of Science and Technology.

- a. DIXON, J. K., 1936.—“Investigations on a sheep ailment in Southland.” 17 (4), 600-619.

(234a) Dixon found that a sickness in lambs on a leached loessic soil in Southland, New Zealand, can be cured by the use of drenches from certain soils or of salt licks. Analysis of these soils failed to reveal any lack of minerals and it is still an open problem whether the disease is due to mineral deficiencies or to parasitic infestations. D.O.M.

## 235—North American Veterinarian.

- a. WEHR, E. E., 1936.—“Earthworms as transmitters of *Capillaria annulata*, the “crop-worm” of chickens.” **17** (8), 18-20.

(235a) Wehr finds that *Capillaria annulata* is transmitted by an intermediate host, the annulate worms, *Helodrilus foetidus* and *H. caliginosus*, being possible vectors. He suggests that it is time to investigate the life histories of other Trichurata.

P.A.C.

## 236—Parasitology.

- a. DAWES, B., 1936.—“On a collection of Paramphistomidae from Malaya, with revision of the genera *Paramphistomum* Fischoeder, 1901, and *Gastrothylax* Poirier, 1883.” **28** (3), 330-354.
- b. WARWICK, T., 1936.—“The parasites of the muskrat (*Ondatra zibethica* L.) in the British Isles.” **28** (3), 395-402.
- c. SIMON, J. R. & SIMON, F., 1936.—“*Philonema agubernaculum* sp. nov. (Dracunculidae), a nematode from the body cavity of fishes.” **28** (3), 440-442.
- d. VAN CLEAVE, H. J., 1936.—“*Tenuisentis*, a new genus of Acanthocephala, and its taxonomic position.” **28** (3), 446-451.

(236a) Dawes has studied a collection of approximately 2,500 Paramphistomes, comprising 30 sets of specimens, recovered from various situations in the bodies of *Bos indicus*, *B. bubalus* and *Capra hircus*, in Malaya. In a discussion of the systematics of the family Paramphistomidae the author considers that the structural differences between the forms referred to the genera *Gastrothylax*, *Fischoederius* and *Carmyrius* are of insufficient importance to warrant generic separation and he reassembles these 3 genera into the original one, *Gastrothylax*. The validity of the various species involved is examined and the 8 species of *Gastrothylax*, recognized by the author, are given in a key. Similarly he relegates *Cotylophoron* to synonymy with *Paramphistomum* and discusses the validity of the species of these genera, recognizing 8 good species, which are keyed. On the basis of this systematic revision the forms represented in the Malayan collection were *Gastrothylax elongatus*, *G. cobboldii*, *G. crumenifer*, *G. spatiosus*, *Paramphistomum cervi*, *P. explanatum*, *P. siamense*, *P. cotylophorum*, *P. gotoi* and *P. orthocoelium*. New host records are mentioned.

J.N.O.

(236b) Warwick has examined several muskrats, *Ondatra zibethica*, obtained from localities in England, Scotland and the Irish Free State, for ecto- and endoparasites. The helminths, which were identified by Baylis [see Helm. Abs., Vol. iv, No. 90a], included *Notocotylus quinqueserialis* and *Hymenolepis evaginata*, which have been introduced with the host, *Capillaria hepatica* and the larvae of *Taenia taeniaeformis* and *T. tenuicollis*, which the author considers to have probably been largely re-acquired from local fauna. Water voles, *Arvicola amphibius amphibius*, and brown rats, *Rattus norvegicus*, were also examined for parasites to see what light they might throw on the parasitic fauna of the British muskrat; the forms encountered in these two hosts are listed. There is also a list of the ecto- and endoparasites hitherto recorded from the muskrat from N. America, Europe and Britain. J.N.O.

(236c) Simon & Simon give a morphological description, based on 16 male and 28 female specimens, of *Philonema agubernaculum* n. sp. collected from the body cavity and muscle of the abdominal wall of *Prosopium williamsi*, *Salvelinus fontinalis* and *Salmo shasta*. The 3 fish hosts were taken in certain waters of the Wyoming National Forest during 1934. The authors claim that the new species differs from *P. oncorhynchi*, the only other described species of the genus, chiefly by its much smaller size. They also observe that, in several instances, pathological changes, particularly of the gonads, were found in parasitized fish.

J.N.O.

(236d) Van Cleave has restudied a species of Acanthocephala described as *Rhadinorhynchus niloticus* by Meyer in 1932 from the fish, *Heterotis niloticus*, from the Egyptian Nile. In a discussion the author considers that, from morphological evidence based on the examination of supplementary material, the retention of this species in the genus *Rhadinorhynchus* and its allocation within the order Palaeacanthocephala cannot be justified. He proposes *Tenuisentis* n. g., a diagnosis of which is given, for the reception of Meyer's species which is designated as type. This new genus becomes type of Tenuisentidae n.fam., which is assigned to the order Eoacanthocephala (diagnosis in press).

J.N.O.

### 237—Phytopathology.

- a. GODFREY, G. H., 1936.—“The pineapple root system as affected by the root-knot nematode.” *26* (5), 408-428.
- b. CHRISTIE, J. R. & ARNDT, C. H., 1936.—“Feeding habits of the nematodes *Aphelenchoïdes parietinus* and *Aphelenchus avenae*.” *26* (7), 698-701.

(237a) Godfrey gives a detailed description of root systems of pineapples grown in soil with varying intensities of eelworm population (*Heterodera marioni*), and correlates root damage with initial infestation of soil and growth of aerial parts of the plant. Plants showing all primary roots bearing terminal galls occur in soil with 172,800 larvae per cubic foot for it is shown that 100 active larvae located at the root-tip are necessary for the production of such galls. Slighter infestations of soil produce non-terminal galls especially on the smaller roots, and these, in time, build up the population of nematodes in the soil.

M.J.T.

(237b) Christie & Arndt report the successful cultivation of *Aphelenchoïdes parietinus* and *Aphelenchus avenae* on an agar medium together with a fungus on which the eelworms feed. They have observed puncture of a fungal hypha by the mouth spear and the flow of granules in the hypha to the point of puncture. On seedlings growing in soil inoculated with *A. parietinus*, they found brownish lesions on roots and injury to terminal buds, especially when the seed leaves emerged from the soil more than five days after seed sowing. In addition, they observed injury to cotyledons and hypocotyls of seedlings requiring 12 to 15 days for germination. They conclude that neither *Aphelenchoïdes parietinus* nor *Aphelenchus avenae* can be dismissed as merely saprophytic secondary invaders of no significance.

T.G.

## 238—Plant Disease Reporter.

- a. GAINES, J. G., 1936.—“Survey of tobacco plantbed diseases in Georgia, 1936.” *20* (9), 142.
- b. ANON, 1936.—“Stem nematode causing damage to alfalfa in Arizona.” *20* (9), 144-145.
- c. CROSSMAN, L. & CHRISTIE, J. R., 1936.—“A list of plants attacked by the leaf nematode (*Aphelenchoides fragariae*).” *20* (10), 155-165.
- d. BOYD, O. C., 1936.—“Severe damage to strawberries in Massachusetts from winter injury and dwarf.” *20* (11), 183.
- e. MILLER, P. R., 1936.—“Diseases of cabbage and beans in Copiah County, Mississippi.” *20* (12), 190-193.

(238a) Gaines records that slight infections of *Heterodera marioni* were seen late in the transplanting season of 1936 in tobacco-growing regions of Georgia which were known to have been infected in previous seasons. M.J.T.

(238b) Alfalfa plants in a field in Arizona were found during the summer of 1935 to be dead or dying and similar injury was noted in adjacent fields of the same crop. Material was submitted to Dr. Steiner who reported that the plants were infested with *Anguillulina dipsaci* and *Cephalobus elongatus*.

T.G.

(238c) Crossman & Christie first discuss the synonymy of *Aphelenchoides fragariae*, *A. olesistus*, *A. ritzema-bosi* and *A. subtenuis* and conclude that the morphological differences between these forms are so slight and unreliable as to render their recognition as distinct species practically impossible. *A. olesistus*, *A. ritzema-bosi* and *A. subtenuis* are considered as synonyms of *A. fragariae*. They list 179 hosts for this nematode including those parasitized by its synonymous forms but also indicate the appropriate synonym after each host. Five doubtful host records are discussed at the end of the paper.

T.G.

(238d) Boyd reports on “dwarf” in strawberries due to *Aphelenchoides fragariae* in previously uninfested fields in the Cape Cod area. On some farms where disease had earlier been prevalent, crop rotation and the importation of plants from outside sources had reduced the incidence of disease.

T.G.

(238e) Miller found 11 fields of cabbages out of 65 examined infested with *Heterodera marioni* but only two of these appeared to have more than 10% of affected plants. In the case of bean fields, *H. marioni* was found generally on plants growing in sandy soils and in some cases attack was severe enough to cause yellow stunted plants unable to set pods.

T.G.

## 239—Policlinico (Sezione Pratica).

- a. ANTONELLI, G., 1936.—“Ciste da echinococco del polmone in fase degenerativa simulante un idropneumotorace e con reperto del b. di Eberth, in cultura, pura, nel suo contenuto; pleurite purulenta prevalentemente interlobare anch’essa di natura eberthiana.” *43* (27), 1231-1234, 1237-1240, 1243.
- b. AMANTEA, F., 1936.—“Cisti di echinococco con degenerazione neoplastica.” *43* (29), 1321-1328.
- c. ARMENAG, S., 1936.—“Su di un caso di ulcera gastrica perforata in cisti da echinococco.” *43* (30), 1373-1374.

## 240—Prensa Médica Argentina.

- a. BATTAGLIA, A. & ARATA, E. C., 1936.—“Anemia perniciosa por tricocefálos trichiurus.” 23 (18), 1094-1101.

## 241—Proceedings of the Helminthological Society of Washington.

- a. CHITWOOD, B. G., 1936.—“Observations on the chemical nature of the cuticle of *Ascaris lumbricoides* var. *suis*.” 3 (2), 39-49.
- b. JONES, M. F., 1936.—“A new species of cestode, *Davainea meleagridis* (Davaineidae) from the turkey, with a key to species of *Davainea* from galliform birds.” 3 (2), 49-52.
- c. SANDGROUND, J. H., 1936.—“On the species of *Moniezia* (Cestoda: Anaplocephalidae [Anoplocephalidae]) harboured by the hippopotamus.” 3 (2), 52-53.
- d. KRULL, W. H., 1936.—“Studies on the life history of *Telorchis robustus* (Trematoda: Plagiorchiidae).” 3 (2), 54-56.
- e. KRULL, W. H., 1936.—“New terrestrial and aquatic intermediate hosts for *Brachylaemus virginiana* (Dickerson) Krull (Trematoda: Brachylaemidae).” 3 (2), 56-58.
- f. KRULL, W. H., 1936.—“Additional second intermediate hosts for *Gorgodera amplicava* Looss, 1899 (Trematoda: Gorgoderidae).” 3 (2), 58.
- g. FOSTER, A. O., 1936.—“Parasitic worms of equines in Panama.” 3 (2), 59-60.
- h. GIOVANNOLA, A., 1936.—“Some observations on the emission of cercariae of *Schistosoma mansoni* (Trematoda: Schistosomatidae) from *Australorbis glabratus*.” 3 (2), 60-61.
- i. HOFFMAN, W. A. & JANER, J. L., 1936.—“Miracidial twinning in *Schistosoma mansoni* (Trematoda: Schistosomatidae).” 3 (2), 62.
- j. HOFFMAN, W. A., 1936.—“An abnormal ovary in *Fasciola hepatica* (Trematoda: Fasciolidae).” 3 (2), 62.
- k. BENNETT, H. J. & TOBIE, J. E., 1936.—“New records on the prevalence and distribution of some Telorchiinae from *Pseudemys elegans* Wied.” 3 (2), 62-63.
- l. VAN CLEAVE, H. J. & TOWNSEND, L. H., 1936.—“On the assignment of *Echinorhynchus dirus* to the genus *Acanthocephalus*.” 3 (2), 63.
- m. DIKMANS, G., 1936.—“A method for obtaining adults of *Stephanofilaria stilesi* (Nematoda: Stephanofiliidae).” 3 (2), 64.
- n. DIKMANS, G., 1936.—“The springbuck, *Antidorcas marsupialis*, a new host of the lungworm, *Bronchonema magna* Mönnig, 1932 (Nematoda: Metastrongylidae).” 3 (2), 64.
- o. VAN VOLKENBERG, H. L., 1936.—“A method for recovering the strongyle larvae of the horse.” 3 (2), 65.
- p. WRIGHT, W. H. & VAN VOLKENBERG, H. L., 1936.—“A note on the use of brilliant green as an anthelmintic for chickens.” 3 (2), 65.
- q. HORSFALL, M. W., 1936.—“Notes on the spread, in one year, of helminths from infected to uninfected poultry yards.” 3 (2), 66.
- r. PRICE, E. W., 1936.—“Two new trematodes from African reptiles.” 3 (2), 67-68.
- s. CHRISTIE, J. R. & CROSSMAN, L., 1936.—“Notes on the strawberry strains of the bud and leaf nematode, *Aphelenchoides fragariae*, I.” 3 (2), 69-72.
- t. STEINER, G., 1936.—“Opuscula miscellanea nematologica, IV.” 3 (2), 74-80.
- u. FILIPJEV, I. N., 1936.—“On the classification of the Tylenchinae.” 3 (2), 80-82.

(241a) Chitwood has shown that the cuticle of *Ascaris lumbricoides* var. *suis* is composed of five substances which could be segregated by physical and chemical means. Segregate 1, which contained albumins, was obtained by extracting the cuticle with distilled water. The insoluble residue was extracted with half-saturated lime water to yield segregate 2, which contained a substance which was probably a glucoprotein. The residue from this was freed from lime and digested with a pancreatic extract containing Northrup's trypsin plus enterokinase. This yielded segregate 3, which contained a fibroid and corresponded to the matrix layer of the cuticle. The residue after the removal of segregate 3 was extracted with hot distilled water which dissolved the fibre layers, and then with hot 10% acetic acid which dissolved the internal cortical and fibril layers. These extracts gave identical colour reactions and were combined as segregate 4. This gave the reactions of a member of the collagen group of proteins. Segregate 5, which remained after the above treatment, was a fine hair-like mass which represented the pure external cortical layer. This gave the reactions of a keratin. The approximate amounts of segregates 1 to 5 were, respectively, 25, 9, 35, 29 and 2% of the whole cuticle.

R.H.H.

(241c) From a young hippopotamus in northern Katanga Sandground obtained numerous specimens of a species of *Moniezia* in which 18 to 23 rosettes of interproglottidal glands were present from practically all segments and are identified as *M. expansa* Rud. These parasites differ from *M. amphibia* v. Instow, 1901 unless the poor preservation of v. Linstow's material obscured the interproglottidal glands.

R.T.L.

(241d) A description is given by Krull of the sporocyst and cercaria of *Telorchis robustus* from the land turtle. An additional first intermediate host is *Fossaria parva* while *Physa halei* is a suitable second intermediate host.

R.T.L.

(241e) Krull has ascertained experimentally that *Helix pomatia*, *Dero-ceras laeve* and *Pseudosuccinea columella* can serve as intermediate hosts for *Brachylaemus virginiana* (Dickerson).

R.T.L.

(241f) *Physa halei*, *Lymnaea traskii*, *Helisoma trivolvis* and *Pseudosuccinea columella* are capable of being infected experimentally as second intermediate hosts by cercariae of *Gorgodera amplicava* Looss, 1899 from naturally infected clams *Musculium partumeium*.

R.T.L.

(241g) Foster lists 44 helminths found in 105 native equines of Panama and indicates their relative abundance. "Dhobie itch"-like lesions due to a nematode larva are of frequent occurrence.

J.W.G.L.

(241h) According to Giovannola the emission of cercariae of *Schistosoma mansoni* from *Australorbis glabratus* seems to depend chiefly on the direct action of light and is greatest between 9.30 a.m. and 3.30 p.m.

R.T.L.

(241m) Pieces of skin from cattle obtained from abattoirs in Baltimore were sliced and put through a meat grinder. The material was then left overnight in a Baermann apparatus. The residue of the centrifuged liquid from the funnel showed embryos of *Stephanofilaria stilesi*. When the ground up material was placed in a coarse screen and washed, intact adult females were found in the washings.

R.T.L.

(2410) Van Volkenberg's method of collecting horse strongyle larvae is to break up four-day-old faeces and place in a Baermann apparatus containing tap water. After drawing the larvae off they can be retained in an inactive state for a month or more by centrifuging, allowing to evaporate and then placing in a humid atmosphere. This method is unsatisfactory for faeces containing mucus.

J.W.G.L.

(2411) Wright & Van Volkenberg find that brilliant green (tetraethyl-diamino-triphenyl-methane-sulphate) administered in hard gelatine capsules will remove species of *Raillietina* from chickens and is sometimes effective against *Ascaridia galli*. It is completely ineffective against a number of other common helminths of poultry. It was, however, very toxic, 5 out of 8 experimental chickens dying as a result of the treatment.

P.A.C.

(2412) Horsfall finds that of 9 species of poultry parasites abundant in a certain run, 4 were quickly carried over to a clean plot 300 feet away. *Hymenolepis carioca* appeared in clean birds on this plot within a month, *Raillietina cesticillus* within 3 months and *Heterakis gallinae* and *Ascaridia lineata* within 4 months. A year later, the other 5, all cestodes, had not been carried over to the other plot.

P.A.C.

(2413) *Schizamphistomoides constrictus* n. sp. from *Pelomedusa galeata* and *Cyclorchis varani* n. sp. from *Varanus niloticus*, both from Tanganyika, are described and differentiated from allied species.

R.T.L.

(2414) Christie & Crossman deal briefly with four different problems connected with "dwarf" disease of strawberry caused by *Aphelenchoides fragariae*. (i) They describe the successful experimental infection of strawberry plants with specimens of *A. fragariae* placed in drops of water on the crowns of plants. In one experiment symptoms of disease became evident about two months after inoculation. (ii) Details are given for the preparation of a nutrient agar medium on which they have successfully cultivated a strain of *A. fragariae* obtained from strawberry plants grown in Massachusetts. (iii) A short account is given of some experiments on the hot-water treatment of strawberry plants at various temperatures. (iv) Diseased strawberry plants frequently harbour specimens of *Cephalobus elongatus* and *Aphelenchoides parietinus* in addition to *A. fragariae*. The eggs of all three species are described and figured at the same scale of magnification.

T.G.

(2415) Steiner describes and figures (i) *Aphelenchoides limberi* n. sp., obtained from diseased imported bulbs of Iris var. Wedgewood. Females only of the new species were found and it was possible to culture these on a nutrient agar medium. (ii) *Acrobeles variabilis* n. sp., from Ixia bulbs attacked by a fungus (*Altermaria* sp.). (iii) *Acrobeles bodenheimeri* n. sp., from an agar plate culture inoculated with orange seed from a seed bed in Palestine. (iv) Under the new generic name of *Tricephalobus* (cephalobs with three lips) a description is given of *Tricephalobus longicaudatus* (Butschli, 1873) which was obtained from dead insects. (v) Measurements are given for *Acrobeles crossotus* described by Steiner in 1929.

T.G.

(2416) Filipjev proposes a classification of the subfamily Tylenchinae. Species of the genus *Anguillulina* exhibit diverse structural features in the character of the head, size of the spear, shape of the oesophagus, single or

double nature of the ovary, shape and extent of the male caudal alae and the nature of the cuticular striations. Use is made of these differences in the proposed new classification. This consists of four main groups in which the genera are arranged. The type species and other principal species are indicated.

T.G.

**242—Proceedings of the Indian Academy of Sciences. Section B.**

- a. MIRZA, M. B., 1936.—“A new species of the nematode genus *Dermatoxys* from *Lepus ruficaudatus*.” 3 (3), 234-237.
- b. LAL, M. B., 1936.—“A new species of the genus *Parorchis* from *Totanus hypoleucus*, with certain remarks on the family Echinostomidae.” 4 (1), 27-35.
- c. LAL, M. B., 1936.—“A new genus of trematodes of the sub-family Typhlocoelinae from the Shoveller Duck, *Spatula clypeata*.” 4 (1), 45-51.
- d. LAL, M. B., 1936.—“A new species of the genus *Levinsemiella* from the Jack Snipe, *Gallinago gallinula*.” 4 (2), 92-96.
- e. DASTUR, J. F., 1936.—“A nematode disease of rice in the Central Provinces.” 4 (2), 108-121.

(242a) To the genus *Dermatoxys* Mirza adds a fourth species, *D. ruficaudata* n. sp., from the colon of the Indian hare *Lepus ruficaudatus*. The author points out that the descriptions of *D. veligera* given by Schneider, Seurat and Hall, and the figures of York & Maplestone all differ in some respect from each other, yet none are applicable to the specimens found in *L. ruficaudatus*.

R.T.L.

(242b) From the cloaca of the common Summer Snipe, *Totanus hypoleucus*, at Lucknow, Lal describes *Parorchis snipis* n. sp. Lal is of opinion that *Parorchis* is an echinostome, for even the cercaria has circumoral collar and spines. As it differs from members of known subfamilies of Echinostomidae, however, he places it in a new subfamily Parorchiinae. A chart is given to illustrate the author's views on the polyphyletic origin of the Echinostomidae.

R.T.L.

(242c) A new monostome *Typhlophilus shovellus* n. g., n. sp. is described from the duck, *Spatula clypeata*, at Lucknow. It differs from *Tracheophilus* and *Typhlocoelum* in the relation of the genital pore to the bifurcation of the gut, in having a curved prepharynx, a crescent-shaped bladder and a small oval receptaculum seminis behind the oötype.

R.T.L.

(242d) To ten authenticated species of the genus *Levinsemiella* Lal adds *L. indica* n. sp. from the bursa fabricii of the Jack Snipe at Lucknow.

R.T.L.

(242e) Dastur describes a disease of rice characterized by the presence of sterile flowers having white glumes which may be distorted or the spikelets may be aborted. Conditions of high atmospheric humidity, when the flowers are still enveloped by the sheath, favour the appearance of the disease and on certain early varieties of rice, whose flowers emerge during such periods of high humidity, disease symptoms are particularly common. An unnamed species of *Aphelenchoïdes* has been found associated with the disease as an ectoparasite on the inner sides of white glumes, on stigmas and anthers and in leaf axils.

T.G.

## 243—Proceedings of the Royal Society of Medicine.

- a. LEIPER, R. T., 1936.—“Crustacea as helminth intermediaries.” **29** (9), 1073-1074.
- b. PETERS, B. G., 1936.—“Some recent developments in helminthology.” **29** (9), 1074-1084.

(243a) The rôle of the Crustacea, especially those of the family Cyclopidae, in the transmission of helminths is reviewed. Attention is drawn to the remarkable similarity between Fedtschenko's illustration of the alleged metamorphosed *Dracunculus* larva in Cyclops and the infective larva of *Camallanus* and to the differences it shows from the infective larva of *Dracunculus* as obtained experimentally in Cyclops.

R.T.L.

(243b) Peters briefly surveys some of the recent work on life-history anomalies, resistance to digestion, metabolism, and immunology among the cestodes. He records an axillary infection of a dog with *Sparganum mansoni* and draws attention to the different structure of the cysticercus in *C. cellulosa* and *C. bovis*.

B.G.P.

## 244—Queensland Agricultural Journal.

- a. ROBERTS, F. H. S., 1936.—“The distribution of the gastro-intestinal parasites of sheep in Queensland.” **46** (1), 30-37.
- b. ROBERTS, F. H. S., 1936.—“Studies on the biology and control of the large roundworm of fowls, *Ascaridia galli* (Schrank 1788) Freeborn 1923.” **46** (1), 38-50; (2), 173-191.
- c. MANDELSON, L. F., 1936.—“The tobacco-growing industry in the United States of America.” **46** (2), 143-169.

(244a) Of the various climatic factors in Queensland rainfall appears to be that most responsible for the occurrence of marked helminthiasis. *Haemonchus contortus*, which is the most frequent and widespread of the parasites of the gastro-intestinal tract, is primarily a summer rainfall species and attains its highest development in those areas with about 24 inches of annual rainfall especially where distributed throughout the year. *Ostertagia ostertagi* is very prevalent in cattle on the south and north coasts while in sheep *O. circumcincta* is most frequent in the Stanthorpe district. *O. trifurcata* is seen only on the Darling Downs. Of the six species of *Trichostyngylus*, *T. colubriformis* is the most common and widely spread and is especially prevalent on the Darling Downs and the other species are of little economic importance. *Cooperia* spp. occur only in the south east where the rainfall is high and well distributed. *Nematodirus* spp. are practically confined to the south and south east. *Bunostomum trigonocephalum* has not been seen in any of the true sheep areas. *B. phlebotomum* of cattle is very abundant on the coastal areas of the tropical part of Queensland. *Oesophagostomum columbianum* is absent from the far west and north west districts but is very common on the Darling Downs and in the central west. *Chabertia ovina* is rare. *Trichuris ovis* occurs in 25% of the animals examined but always in small numbers. *Moniezia*, although commonest in the south and central west has been found in sheep from Cloncurry and Longreach where conditions of high temperatures and dryness prevail.

R.T.L.

(244b) In an investigation of *Ascaridia galli*, Roberts considers first the effect of various environmental factors on the development and viability of the egg. The factors considered were sunlight, temperature, desiccation and chemicals on eggs free and in faeces and soil. He also describes the 4 moults, the larval and young adult stages and observes the changes in the host when the larvae burrow deep into the crypts of Lieberkühn.

P.A.C.

(244c) According to a special resolution of the recently formed "Tobacco Disease Council" of the United States "Nematodes constitute the biggest plant problem in the South" and the Council urges that "More intensive study of the nematode problems be conducted and that it be carried out on a co-ordinated basis as far as possible." *Heterodera marioni* is most destructive at relatively high temperatures in light soils and is consequently a serious factor in the production of flue-cured and cigar tobaccos. It is not a problem in the northern states where seasonal conditions are cooler and soils are heavier. The high cost of artificial shade tents is an additional factor in the cigar wrapper district of Florida. At the North Florida Experiment Station tobacco has been grown successfully for 13 successive years by maintaining a thoroughly bare fallow for the ten months of the year during which tobacco is not in the field. Late plantings are more seriously affected than earlier. Growing tobacco after two years of fallow is so far the most effective measure of control. Peanuts followed by oats and weeds, with tobacco in the third year, is a promising type of rotation. Florida parsley (*Richardia scabra*), Horse weed (*Erigeron canadensis*) and Rag weed (*Ambrosia artemisiifolia*) are among the most successful of the resistant weeds used. All commercial varieties of tobacco except possibly Faucett's Special and White Honduras are quite susceptible to *H. marioni*.

R.T.L.

#### 245—Revista Médica Veracruzana.

- \*a. CALDWELL, F. C. & CALDWELL, E. L., 1936.—"Sobre la efectividad antihelmíntica de la leche del higuerón en el tratamiento del tricocefalo y los ascarides." 16, 1778-1787.

#### 246—Revista de Parasitología, Clínica y Laboratorio.

- a. BACIGALUPO, J., 1936.—"Sobre la presencia accidental de huevos de helmintos en las materias fecales humanas. Su significación clínica. Su diagnóstico." 2 (3), 267-276. [English summary.]
- b. BAER, J. G., 1936.—"Une nouvelle espèce d'oxyure, *Atractis morinae*, n. sp., chez une tortue africaine." 2 (3), 277-281. [English summary.]
- c. CABALLERO, E., 1936.—"Oxyurosis y tricocefalosis en Mexico." 2 (3), 283-287. [English summary.]
- d. CRAM, E. B., 1936.—"Biological and morphological observations on a species of *Strongyloides* (Nematoda) of chickens in Puerto Rico." 2 (3), 289-304.
- e. FAUST, E. C., 1936.—"Strongyloides and strongyloidiasis." 2 (3), 315-341.
- f. FERMOSELLE BACARDÍ, J. & PORTUONDO DEL PINO, A., 1936.—"*Dipylidium caninum*. Caso humano." 2 (3), 343-347. [English summary.]
- g. FRANKLIN, G. C. G., 1936.—"Parasitology. Its importance to the medical student." 2 (3), 349-353.
- h. GIORDANO, M., 1936.—"Uno sguardo alle attuali condizioni sanitarie dell'Eritrea." 2 (3), 355-366. [English summary.]

\* Original not available for checking or for review.

- i. HALL, M. C., 1936.—“Problems of parasitism in Hawaii.” *2* (3), 367-383.
- j. JOYEUX, C., 1936.—“Recherches helminthologiques dans la région de Marseille.” *2* (3), 413-419. [English summary.]
- k. ARENAS MARTORELL, R., HERRADA LLÍBRE, M. & ALVAREZ GONZÁLEZ, J. R., 1936.—“Valor del examen parasitologico de las heces fecales frente al parasitismo intestinal verminoso revelado por la autopsia.” *2* (3), 461-467. [English summary.]
- l. ARENAS MARTORELL, R., HERRADA LLÍBRE, M. & ALVAREZ GONZÁLEZ, J. R., 1936.—“Parasitismo intestinal del perro en la ciudad de la Habana y Marianao. Reporte de 200 exámenes de heces fecales.” *2* (3), 469-470.
- m. CALVÓ FONSECA, R., 1936.—“Los vermes intestinales y la apendicitis.” *2* (3), 471-482. [English summary.]
- n. KOURÍ, P., BASNUEVO, J. G., FERMOSELLE BACARDÍ, J. & SOTOLONGO, F., 1936.—“Contribución al conocimiento del ciclo evolutivo del *Strongyloides stercoralis* (Tercera comunicación).” *2* (3), 517-520. [English summary.]

(246a) Bacigalupo discusses the finding of eggs of non-human helminths in human faeces, as in the classical case of *Oxyuris incognita*. *Fasciola hepatica* eggs can pass through the intestine in a similar way. True parasite eggs, however, are to be found in repeated examinations, and are all at the same stage of development. Eggs of plant-parasitic nematodes can also pass unharmed through the intestine of cockroaches and mealworms. B.G.P.

(246c) Caballero reports that more than half the population of Mexico is infected with *Trichuris*. *Oxyuris* is also very common and may be a cause of appendicitis. B.G.P.

(246d) Cram identifies *Strongyloides avium* as a parasite of chickens in Puerto Rico and suggests that further investigation into the structure and life history of *S. oswaldoi*, also a parasite of chickens, is necessary. In natural infections *S. avium* is generally found in the intestine whereas in experimental infections it occurs almost entirely in the caeca—the reason not yet being obvious. P.A.C.

(246e) Faust usefully surveys recent work on *Strongyloides*, including the discovery of the “Rhabditiform” parasitic male, the study of factors influencing direct and indirect types of life cycle, the discovery by Beach of a succession of free-living generations, and the important demonstration by both Nishigori and Faust of true internal self-infection in certain cases. He also discusses the biological and clinical significance of this parasite, its geographical distribution and systematic position. B.G.P.

(246h) In the course of his survey of health conditions in Eritrea, Giordano mentions that *Taenia saginata* is common but hookworm rare. Dracunculus occurs on the shores of the Red Sea. There have been only two autochthonous cases of schistosomiasis, both intestinal. B.G.P.

(246i) Hall opens with a concise discussion of the varied ecological factors, pertaining to parasitism, which are found in the Hawaiian islands. They are geologically recent, volcanic islands characterized by an abundance of steep slopes and (usually) a thin soil overlying lava or volcanic ash. The

climate is oceanic and therefore favourable to parasites, except where torrential rains scour the windward slopes of mountains. Among the more interesting parasites are *Fasciola hepatica* and *Trichostrongylus colubriformis* in man, gizzard and crop worms in poultry, *Dirofilaria immitis* in dogs, and *Stephanofilaria stilesi* (?) in cattle.

B.G.P.

(246j) Joyeux points out that Marseilles is interestingly situated from the helminthological standpoint, since it is an important maritime city and is also close to the Rhône delta. The Institut de Médecine Coloniale, shortly to be opened there, will give enhanced facilities for studying helminthological problems. He gives a preliminary list of helminths found locally in man, carnivores, rodents, birds, reptiles, amphibians, and fishes.

B.G.P.

(246k) Arenas Martorell and co-workers compare, in 68 dogs, faecal examinations and post-mortem examinations for detecting parasites. Of the results, which are set out in tabular form, one of the more striking is the post-mortem finding of *Dipylidium* in 34 dogs whereas this parasite was not recorded at all in the faecal examinations.

B.G.P.

(246l) Of the 200 dogs examined in Cuba by Arenas Martorell and co-workers, 133 were infested by intestinal parasites. The tabulated results show that hookworms are by far the commonest parasites.

B.G.P.

(246m) Calvó Fonseca shows that 20 out of 375 appendixes examined contained worms, 15 of them threadworms and 5 *Trichuris*.

B.G.P.

(246n) In a series of microphotographs and drawings, Kourí *et al.* describe the development of the free-living female *Strongyloides stercoralis* from the larva found in the stool.

B.G.P.

## 247—Revue de Médecine et d'Hygiène Tropicales.

- a. COUTELEN, F., 1936.—“Contrôle expérimental de certaines hypothèses récentes relatives au cycle évolutif du ténia échinocoque et à la prophylaxie de l'échinococose.” 28 (3), 161-178.

(247a) In view of experiments undertaken, or contemplated, in South America to explore possible complications in the life history of *Echinococcus granulosus*, Coutelen here describes some of his own experiments and concludes that under natural conditions hydatid follows the generally accepted life cycle. Thus, attempts to infect certain birds of prey, (kestrel, buzzard, owl, crow) with adults by feeding hydatid sand, and attempts to infect fowls, pigeons and turkeys with cysts by intraperitoneal injections of “sand,” were all fruitless. Moreover, Coutelen was unable to confirm Bacigalupo’s experimental “re-encystment” by feeding hydatid sand to two rabbits and a guinea-pig.

B.G.P.

## 248—Revue Vétérinaire.

- a. MAROTEL, 1936.—“Un nouveau parasite, une nouvelle maladie ; la distomose intestinale porcine.” 88, 130-133.

(248a) This also appeared in Bull. Acad. Méd., 115 (10), 440-442 [see Helm. Abs., Vol. v, No. 18a].

249—*Revue de Zoologie et de Botanique Africaines*.

- a. BERGHE, L. VAN DEN & VUYLSTEKE, C., 1936.—“ Quelques *Setaria* du Congo belge, avec la description d'une espèce nouvelle du Potamochère.” 28 (4), 421-430.

(249a) Filarial worms of the genus *Setaria* are frequent parasites of the peritoneal cavity of animals in the Belgian Congo. To five known species van den Berghe & Vuylsteke add a new form named *S. rodhaini* n. sp. from *Potamochoerus porcus*. This is differentiated from *S. congolensis* and *S. bernardi* known to occur in *Suidae*: the former in a *Phacochoerus* sp. in the French Congo, the latter in a domestic pig in Annam. R.T.L.

250—*Science*.

- a. HEWITT, R., 1936.—“ The culture of a free-living nematode (genus *Rhabditis*) and its use as classroom material.” 84 (2169), 92.
- b. BEAMS, H. W. & KING, R. L., 1936.—“ Survival of ascaris eggs after centrifuging.” 84 (2171), 138.
- c. LAMSON, P. D. & WARD, C. B., 1936.—“ Earth worms as test objects for determining the value of drugs to be used in human intestinal helminth infestations.” 84 (2178), 293-294.

(250a) Hewitt recommends the use of a cornmeal agar medium for the culture of a free-living *Rhabditis* sp., thus providing material which can be used in zoology classes for the study of a typical nematode. T.G.

(250c) Lamson & Ward point out that the use of earthworms as a test object for anthelmintics to be used in human intestinal helminthiasis is irrational. They have made a comparative study of the lethality of 121 chemical substances on earthworms, and on pig Ascaris, and find that there is no correlation of action. For “in vitro” tests on human ascaricides they recommend the use of the morphologically indistinguishable pig Ascaris. K.S.

251—*Scientific Agriculture*.

- a. PARRELL, I. W., 1936.—“ Notes on the survival of the eggs and free-living larvae of sclerostomes on pasture.” 16 (7), 391-397.

(251a) Parnell describes experiments on the survival of parasite eggs and larvae contained in horse and sheep faeces under natural conditions of summer and winter on grassland, and the lethal effect of urine, common fertilizers and various chemical agents. J.W.G.L.

252—*Semana Médica*.

- \*a. BILBAO, T., 1936.—“ Distocia por hidatidosis pelviana.” 1, 273-275.
- \*b. BACIGALUPO, J., 1936.—“ Presencia de huevos de *Heterodera radicicola* (*Oxiurus incognita*) en las materias fecales humanas.” 1, 412-414.
- \*c. ARRÜES, L. D., 1936.—“ Quiste hidático de polo superior de riñón. Imagen atípica.” 1, 441-443.
- \*d. SCHAPIRA, A., 1936.—“ Quiste hidático de riñón.” 1, 633-636.
- \*e. BACIGALUPO, J. & LORETTI, G. A., 1936.—“ Le eritrosedimentación en la ankylostomiasis producida por el *Necator americanus*.” 1, 894-896.
- \*f. FAZIO, J. M., 1936.—“ Diagnóstico y evolución de un pneumoquiste hidático de la base del pulmón derecho. Signo del ‘camalote’.” 1, 1094-1098.

\* Original not available for checking or for review.

## 253—South African Medical Journal.

- a. CAWSTON, F. C., 1936.—“A note on the history of bilharziasis in S.A.” **10** (13), 475.
- b. CAWSTON, F. G., 1936.—“Destruction of the bilharzia parasites of man.” **10** (17), 608-610.

## 254—Taiwan Igakkai Zasshi.

- a. MORIOKA, K., IMAIZUMI, H. & KOO, C., 1936.—“On the results of faecal examination for intestinal parasites harboured by students of the Government Medical College at Taihoku.” **35** (7), 1502-1516. [In Japanese : English summary pp. 1516-1517.]
- b. YUMOTO, Y., 1936.—“On the minute structure of the egg-shells of *Clonorchis sinensis*, and on its abnormal eggs.” **35** (8), 1836-1844. [In Japanese : English summary pp. 1845-1846.]
- c. UJIIE, N., 1936.—“On the process of egg-shell formation of *Clonorchis sinensis*, a liver fluke.” **35** (8), 1862-1894. [In Japanese : English summary pp. 1894-1896.]

(254b) In normal eggs of *Clonorchis sinensis* the arabesque polygonal surface markings are not due to etching of the shell but caused rather by irregular thickness of the outer stratum only. Abnormal eggs are of two types : anomalous eggs without miracidium or operculum, and incomplete eggs without miracidium but with operculum. The former are produced continuously, the latter by young or senile worms or during antihelminthic treatment.

R.T.L.

(254c) In this well-illustrated article, Ujiie describes the formation of the shell in the ootype of *Clonorchis sinensis*. A mature egg-cell, on reaching the ootype, is followed by five to seven yolk cells, after which the cavity dilates rhythmically and granules are secreted to form the equatorial part of the shell. The posterior end is next formed and temporarily carries a narrow tubular portion which is represented in the finished egg by the spine. Finally at the anterior end, where at this stage the egg-cell is situated, a separate dilatation of the ootype cavity leads to the formation of the operculum, which thus has a diameter about equal to that of the egg-cell. The formation of abnormal eggs and the process of fertilization are also described.

B.G.P.

## 255—Tidsskrift for Planteavl.

- a. BOVIEN, P., 1936.—In “Plantesygdomme i Danmark 1935. Oversigt, samlet ved Statens plantepatologiske Forsøg. (Plant diseases and pests in Denmark 1935).” **41** (4), 533-568. [English summary pp. 568-570.]

(255a) Bovien reports the occurrence of the potato root eelworm (*Heterodera schachtii*) in several new localities in Denmark.

T.G.

## 256—Tierärztliche Rundschau.

- a. MATOFF, K., 1936.—“Einige Fragen aus der Biologie der Schweinelungenwürmer *Metastrongylus elongatus* und *Chorostrongylus pudendotectus*.” **42** (31), 597-600 ; (32), 617-620.

(256a) From his experiments, which are described and illustrated, Matoff concludes that the progeny of the pig metastrongyles are found in the

faeces in the form of thick-shelled eggs, which hatch in damp soil but not in water. Two larval moults occur in the earthworm intermediary and two more in the mesenteric glands of the pig. Embryonated eggs are passed 24 days after infection of the pig. Matoff used *Eisenia austriaca* and *Dendrobaena rubida* as intermediaries. Guinea-pigs are susceptible but the lung-worms fail to produce fertile eggs in that host.

B.G.P.

### 257—Tijdschrift voor Diergeneeskunde.

- a. TENHAEFF, C. & FERWERDA, S., 1936.—“De Echinococcosis bij de huisdieren.” **63** (15), 847-856; (16), 919-924.  
(257a) This also appeared in Internat. Cong. Comp. Path. Reports, 1 (1) 3-22 [see No. 213d above].

### 258—Transactiones Societatis Pathologicae Japonicae.

- a. TAKENOUCHI, E., 1936.—“Beiträge zur Kenntnis der Biologie des *Paragonimus westermani*.” **26**, 687-689. [In Japanese.]
- b. YAMAMOTO, K., 1936.—“Histo-pathological findings of the uterus, the placenta, and the fetus of dogs infected with *Dirofilaria immitis*. (I. Report).” **26**, 690-694. [In English.]
- c. OHASHI, M., 1936.—“A patho-histological research on the eyes of dogs having *Dirofilaria immitis*.” **26**, 694-695. [In English.]
- d. KAWAI, T., 1936.—“On the transition of the assimilative functions of carbohydrates with reference to the pathological changes in the liver, during the process of experimental rabbit-clonorchiasis.” **26**, 711. [In Japanese.]

(258b) No proof has been obtained by Yamamoto that the embryos of *Dirofilaria immitis* escape from the mother's side of the placenta or have entered the chorionic villi or the foetal blood vessels or tissues. R.T.L.

(258c) Some embryos of *Dirofilaria immitis* escape from the conjunctivae and occur in the eye secretion. They may escape from the blood vessels in the retina and enter the vitreous body. When the region around the intra-ocular part of the optic nerve is affected the blood vessels are liable to become enlarged and haemorrhage may occur. The embryos are seen mainly in the eyelids, palpebral conjunctivae and membrana nictitans and in the eyeballs. They are found mostly in the choroid. R.T.L.

### 259—Transactions of the American Microscopical Society.

- a. CHITWOOD, B. G., 1936.—“Some marine nematodes of the superfamily Enoploidea.” **55** (2), 208-213.
- b. BANGHAM, R. V. & HUNTER, G. W. III, 1936.—“Studies on fish parasites of Lake Erie III. *Microcotyle spinicirrus* MacCallum (1918) Char. emend. and *M. eriensis* sp. nov.” **55** (3), 334-339.
- c. LARUE, G. R. & FALLIS, A. M., 1936.—“Morphological study of *Alaria canis* n. sp. (Trematoda : Alariidae), a trematode parasite of the dog.” **55** (3), 340-351.
- d. MACY, R. W., 1936.—“Three new trematodes of Minnesota bats with a key to the genus *Prosthodendrium*.” **55** (3), 352-359.

- e. PARK, J. T., 1936.—“New trematodes from birds, *Plagiorchis noblei* sp. nov. (Plagiorchidae) and *Galactosomum humbargari* sp. nov. (Heterophyidae).” 55 (3), 360-365.
- f. REID, W. M. & FREEMAN, JR., A. E., 1936.—“A new fluke *Prosthogonimus folliculus* n. sp. (Trematoda) from the American bittern.” 55 (3), 366-368.
- g. HART, J. F., 1936.—“Cestoda from fishes of Puget Sound. II. Tetrarhynchoidea.” 55 (3), 369-387.

(259a) Chitwood describes and figures six new species and one new variety of marine nematodes, belonging to the superfamily Enoploidea, from collections made at Beaufort, N.C., U.S.A. T.G.

(259b) Bangham & Hunter describe *Microcotyle spinicirrus* MacCallum and *M. eriensis* n. sp., both from the gills of the sheepshead, *Aplodinotus grunniens*. These are the only fresh-water examples of this genus. E.M.S.

(259c) LaRue & Fallis describe fully the morphology of *Alaria canis* n. sp. The specimens were recovered after anthelmintic treatment of a six months old Newfoundland dog from northern Ontario. E.M.S.

(259d) Macy describes three new species of bat trematodes, *Prosthodendrium macnabi* n. sp. and *P. naviculum* n. sp. from *Eptesicus fuscus*, and *P. swansoni* from *Myotis lucifugus*. A solution to the taxonomic chaos which has prevailed in the genus *Lecithodendrium* is explained. Lists of species of the genera *Lecithodendrium*, *Paralecithodendrium* and *Prosthodendrium* are given. A key to thirteen species of *Prosthodendrium* is included. E.M.S.

(259e) Park describes *Plagiorchis noblei* n. sp. and *Galactosomum humbargari* sp. nov. from the small intestine of the red-winged blackbird, *Agelaius phoeniceus californicus*, and of the sea-gull, *Larus californicus*, respectively. E.M.S.

(259g) Hart describes *Tentacularia musculara* n. sp. from *Raja rhina*, and *T. megabothridia* n. sp. from *Hexanchus griseus*. Larvae from *Ophiodon elongatus* are identified with *Grillotia erinacea* (van Ben. 1850) of Wardle, 1933, and referred to *Tentacularia*. *Tetrarhynchus anteroporus* n. sp. is described from *Squalus suckleyi*, and shown to be synonymous with *Gilquinia squali* and *G. tetrabothrium* of Wardle, but distinct from *Tetrarhynchus squali* (Fabr.) and *T. tetrabothrium* van Ben. The larval form *Nybelinia surmenicola* of Wardle, 1933, is removed to the genus *Tetrarhynchus* with which *Nybelinia* is synonymous. E.M.S.

## 260—Transactions of the Royal Society of Tropical Medicine and Hygiene.

- a. DAY, H. B. & KENAWY, M. R., 1936.—“A case of bilharzial myelitis.” 30 (2), 223-224.
- b. TURNER, E. L., DENNIS, E. W. & KASSIS, I., 1936.—“The incidence of hydatid disease in Syria.” 30 (2), 225-228.
- c. AUGUSTINE, D. L., FIELD, M. E. & DRINKER, C. K., 1936.—“Observations on living *Microfilaria immitis* in the capillary circulation of bats.” 30 (2), 231-232.

(260b) In Syria there is a high incidence of hydatid in sheep, goats, cattle and camels, while the hospital records give an incidence of 1 : 388 in man. That camels are especially frequently infected is due probably to the fact that they are only slaughtered after their period of usefulness has passed.

R.T.L.

(260c) Microfilariae of *Dirofilaria immitis* were injected intravenously into brown bats and afterwards observed microscopically in the capillaries and larger vessels of the wing. The embryos never escaped or made permanent plugs when they reached vessels which could not be traversed on account of the narrowness of the lumen. They simply backed out against the current. They were not found to have left the vessels or to have entered the large lymphatics.

R.T.L.

## 261—Veterinary Bulletin, U.S. Army.

- a. UNDERWOOD, J. R., 1936.—“Habronemiasis.” 30 (1), 16-28.

(261a) Underwood records Habronema as a common parasite of army animals in the United States and the Philippine Islands. Habronema larvae are capable of penetrating unbroken skin ; they are associated with summer sores and cause Habronema conjunctivitis. Confirmation of the theory that the larvae reached the stomach by the swallowing of infested flies was not obtained from the examination of the stomach contents of 131 horses. Glycerine with fly repellents is recommended for the treatment of cutaneous habronemiasis.

J.W.G.L.

## 262—Veterinary Journal.

- a. MACHATTIE, C., 1936.—“A preliminary note of the life history of *Schistosoma turkestanicum* Skrjabin, 1913.” 92 (8), 291-299.

(262a) This is reprinted from Trans. Roy. Soc. Trop. Med. Hyg., 30 (1) 115-124 [see Helm. Abs., Vol. v, No. 166b].

## 263—Veterinary Medicine.

- a. MICHAEL, V. M. & GRAHAM, R., 1936.—“Epizootological data from laboratory diagnoses.” 31 (3), 114-124.

(263a) Michael & Graham's survey of laboratory diagnosis of diseases in domestic animals in Illinois includes a note on the incidence of helminthic diseases. Tables are given to illustrate the relative frequency of the various helminths of poultry and dogs.

J.W.G.L.

## 264—Veterinary Record.

- a. LANG, W. W., 1936.—“Common salt and some other agents. Their uses in certain conditions.” 48 (29), 879-886.

(264a) In his paper on certain uses of common salt in veterinary practice Lang includes its use against intestinal helminths of horses. Strongylosis is considered to be a cause of debility and routine salt treatment of several

hundred farm horses met with considerable improvement in bodily condition, working ability and freedom from colics. Two hunters treated six times during the hunting season showed a very great drop in egg count during this period. Fibrinogen meal is also recorded as being of use in this connection. The intravenous injection of 5% sodium chloride and 5% sodium citrate in two-pint doses is claimed to destroy thrombus formation; its use in cases of caecal impaction which have not yielded to stomach tube administration of 1½ lb. salt in 8 gallons water revealed remarkable cures within 24 hours in 25 to 30 cases.

J.W.G.L.

### 265—Vida Nueva.

- a. CARBONELL SALAZAR, A. & RODRÍGUEZ REMOS, C., 1936.—“El diagnostico radiologico de la ascaridiasis intestinal y su importancia quirurgica.” 37 (1), 83-94.

### 266—Wiadomości Weterynaryjne.

- a. STEFAŃSKI, W., STRANKOWSKI, M. & NAGÓRSKI, F., 1936.—“Nowy przypadek występowania nerkowca olbrzymiego (*Dioctophyme renale*) w jamie piersiowej u kota.” 15 (191), 219-224. [French summary p. 225.]

(266a) Stefański and his co-workers report a rare case of a female *Dioctophyme renale* in the left thoracic cavity of a cat in Poland. B.G.P.

### 267—Wiener Klinische Wochenschrift.

- a. KASAKOW, P. T., 1936.—“Ueber einen Fall von Aktinomykose kombiniert mit Einkammerechinokokkus.” 49 (27), 848-850.
- b. CHIARI, O., 1936.—“Die Behandlung der Wurmkrankheiten im Kindesalter.” 49 (27), 852-853.

### 268—Zeitschrift für Infektionskrankheiten, Parasitäre Krankheiten und Hygiene der Haustiere.

- a. WOLFFHÜGEL, K., 1936.—“Fimbriariinae (Cestodes).” 49 (4), 257-291.

(268a) In considering the Fimbriariinae, Wolffhügel creates *Profimбриaria* n. gen. and *Fimbriariella* n. gen. on old material previously known as *Chitonorecta multicanalis* and *Fimbriarioides falciformis*. He refutes the opinion of Lopez-Neyra that this group should be considered as malformations of Hymenolepididae, resulting from morbid processes in the gut. A list of new hosts of the Fimbriariinae is given. P.A.C.

### 269—Zeitschrift für Parasitenkunde.

- a. KAHL, W., 1936.—“Beitrag zur Kenntnis des Nematoden *Contracaecum clavatum* Rud.” 8 (5), 509-520.
- b. GOFFART, H., 1936.—“*Heterodera schachtii* Schmidt an gemeiner Hanfnessel (*Galeopsis tetrahit* L.) und an Kakteen.” 8 (5), 528-532.
- c. CHAKRAVORTY, G. K., 1936.—“A new nematode *Strongyluris bengalensis* n. sp., with a note on the genus.” 8 (5), 542-545.
- d. SZIDAT, L., 1936.—“Studien zur Systematik und Entwicklungsgeschichte der Gattung *Leucochloridium* Carus. I. Bemerkungen zur Arbeit von G. Wittenberg (1925): Versuch einer Monographie der Trematodenunterfamilie Harmostominae Braun.” 8 (6), 645-653.

(269a) Kahl gives a detailed and illustrated re-description of *Contracaecum clavatum* found commonly in several food-fishes. The larvae develop in fishes or in other marine animals and may use two intermediaries successively, according to various authors, but Kahl concludes that larvae are most frequently found in the body cavity of *Gadus merlangus*, in the stomach of which adults also occur.

B.G.P.

(269b) Goffart describes the morphology and certain physiological reactions of two strains of *Heterodera schachtii*. Of these the first appears to be a strain highly specialized for the host on which it was found, viz., *Galeopsis tetrahit*, and the name *H. schachtii* var. *galeopsidis* is proposed for it. The strain attacking two species of cactus—*Phyllocactus Akkermannii* and *Cereus speciosus*—previously noted by Adam (1932) appears to be related to the beet strain.

M.J.T.

(269c) Chakravorty gives an illustrated description of *Strongyluris bengalensis* n. sp. from the rectum of the tree-lizard, *Calotes versicolor*, and amends the generic diagnosis.

B.G.P.

(269d) From a re-examination of Rudolphi's types Szidat concludes that *Leucochloridium macrostomum* (Rud.) represents a group of species or subspecies undergoing differentiation. *Distomum ringens* Rud., 1819 is synonymous with *D. macrostomum*. He holds that *D. holostomum* Rud., 1819 is a valid species, with which *L. turanicum* Solowjef, 1912, *Urogonimus insignis* Looss, 1899, and probably *U. cercatus* Monticelli, 1888, are synonymous. These species are redescribed and illustrated.

B.G.P.

## 270—Zentralblatt für Bakteriologie. Abteilung I. Originale.

- a. KALWARYJSKI, B. E., 1936.—“Studien über die Trichinellen. II. Ueber Jodsilberimpregnation der Muskeltrichinellen.” 137 (5), 303-312.

(270a) Kalwaryjski gives a method for the silver-impregnation of trichinella larvae, illustrated with microphotographs. Thin slices of infected muscle are treated with iodine/potassium iodate solution, from 0·1 to 2%, for 10 minutes. They are washed in distilled water and differentiated with sodium thiosulphate solution, the muscle remaining unstained. After thorough washing they are placed in an ammoniacal 10% silver nitrate solution, and differentiated with 5% sodium thiosulphate solution until sufficiently transparent.

B.G.P.

## 271—Zoologischer Anzeiger.

- a. HEINZE, K., 1936.—“Ein neuer Acanthocephale aus der Polarmöwe.” 115 (5/6), 139-142.

(271a) Heinze describes *Polymorphus paucihamatus* n. sp. in the intestine of *Larus glaucopterus* from an undetermined locality. It has fewer hooks (72) than other species of *Polymorphus*.

B.G.P.

## NON-PERIODICAL LITERATURE.

272—JEPPS, M. W., 1936.—“Helminthology.” In: Currie, J. R., “Manual of Public Health: Laboratory Practice.” Edinburgh. pp. 193-241.

273—ROSS, I. C. & GORDON, H. McL., 1936.—“The internal parasites and parasitic diseases of sheep. Their treatment and control.” Sydney, 238 pp.

This text-book by Ross & Gordon on the parasites of sheep is designed to be of assistance both to the parasitologist and to the layman. It is divided into three principal sections of which the first two deal with the Platyhelminthes and Nemathelminthes respectively and the third with the collection and preservation of parasites and methods of diagnosis. The majority of the internal parasites recorded from sheep are described and separate sections giving detailed descriptions of life-histories, methods of treatment and control are devoted to those of major economic importance. The book is illustrated with 46 plates and 35 text-figures. It also contains a glossary, a bibliography and an index.

D.O.M.

274—SABADINI, L., 1936.—“Les kystes hydatiques de la rate.” Paris, 200 pp.